Beyond Rationality: How Individual Differences Result in Suboptimal Choices

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

NEDERLANDSTALIGE SAMENVATTING

Heel wat onderzoek heeft aangetoond dat het niet evident is om steeds optimale beslissingen te nemen. Mensen hebben slechts een beperkte cognitieve capaciteit om informatie te verwerken, gebruiken ook hun emoties als informatie, en ze kunnen bovendien slechts een beperkte hoeveelheid informatie verwerken. Als gevolg daarvan, maken mensen geregeld beslissingen die afwijken van de logica. In deze dissertatie stellen we dat sommige mensen meer geneigd zijn dan andere om zulke afwijkende beslissingen te nemen. In vier hoofdstukken onderzoeken we hoe enkele persoonlijkheidskenmerken uiteindelijk tot suboptimale keuzes kunnen leiden.

In het tweede hoofdstuk onderzoeken we de invloed van sociale vergelijking op de neiging om meer te willen hebben dan anderen, eerder dan meer te willen in het algemeen. Wanneer mensen de keuze krijgen tussen een netto-inkomen van 1600€ per maand terwijl anderen 1400€ verdienen, of een netto-inkomen van 2000€ per maand terwijl anderen 2200€ verdienen, zullen heel wat mensen geneigd zijn om voor het laagste inkomen te kiezen om toch maar meer te verdienen dan de anderen. Deze positionele keuzes zijn echter niet per definitie irrationeel. Zeker voor positionele goederen, waarvan de waarde afhangt van hoeveel men ervan bezit in vergelijking met anderen (Frank, 1985), kan een positionele keuze zelfs heel rationeel zijn. Vanuit een maatschappelijk oogpunt is de competitive voor positionele goederen echter een nuloperatie. De middelen die geïnvesteerd worden in deze competitie kunnen niet meer in iets anders geïnvesteerd worden, en zijn dan ook een sociale verspilling (Weiss & Fershtman, 1998). De voorkeur om meer te hebben dan anderen, zelfs van positionele goederen, is dus tot op zeker hoogte suboptimaal. Terwijl vorig onderzoek heeft aangetoond dat mensen meer geneigd zijn om positioneel te kiezen naargelang het domein, en dat sommige mensen ook over het algemeen meer geneigd kunnen zijn om voor de positionele optie te gaan, demonstreren wij dat deze effecten verklaard kunnen worden door sociale vergelijking. We tonen namelijk aan dat mensen meer positioneel kiezen in domeinen waarin ze meer aan sociale vergelijking moeten doen omdat ze niet uit zichzelf kunnen weten wat een normale waarde is. Bovendien vinden we dat mensen die de gewoonte hebben om veel aan sociale vergelijking te doen, ook meer geneigd zullen zijn om meer te willen hebben vanuit een relatief oogpunt. Deze mensen die zichzelf dus graag vergelijken met anderen maken deze positionele keuzes omdat deze sociale vergelijkingen hun competitiegeest

aanwakkeren. Ten gevolge daarvan, zijn mensen die veel aan sociale vergelijking doen meer geneigd om positionele, en dus ook suboptimale keuzes te maken.

Het derde hoofdstuk wil nagaan of mensen suboptimale keuzes maken omdat ze simpelweg niet weten wat ze eigenlijk goed vinden. We introduceren hiervoor een nieuwe persoonlijkheidsvariabele die meet in welke mate mensen moeilijkheden ondervinden om evaluaties te maken. Sommige mensen hebben het moeilijk om te weten hoe goed ze iets vinden. In een eerste studie tonen we aan dat mensen die moeite hebben om evaluaties te maken, minder tevreden zijn met hun aankoopbeslissingen wanneer ze konden kiezen uit relatief veel productalternatieven. Vorig onderzoek heeft inderdaad aangetoond dat mensen kunnen lijden onder te veel keuzemogelijkheden, en bijgevolg stress ondervinden om te kiezen, en zelfs gedemotiveerd raken om te kiezen. Ze blijken ook minder tevreden te zijn met hun keuzes en ondervinden meer spijt wanneer ze te veel keuzemogelijkheden krijgen. Wij demonstreren in deze studie dat de negatieve effecten van een overdaad aan keuze gemodereerd worden door individuele verschillen in evaluatiemoeilijkheden. In een tweede studie tonen we aan dat mensen met evaluatiemoeilijkheden meer vertrouwen op irrelevantie productattributen dan op hun eigen evaluaties om de smaak van producten te beoordelen. In deze studie vinden we dat mensen met evaluatiemoeilijkheden geen verschil kunnen proeven in chips van hoge kwaliteit versus chips van lage kwaliteit. Van zodra ze te weten komen dat de chips van hoge kwaliteit ook de duurste chips is, kennen ze plots veel meer kwaliteit toe aan de duurste chips. Ze lijken dus niet alleen meer te vertrouwen op prijsinformatie dan op hun eigen evaluaties, maar ook minder in staat om goede evaluaties te maken. Door een gebrek aan vertrouwen in hun eigen evaluaties zijn deze mensen dus ook meer geneigd om suboptimale keuzes te maken.

In het vierde hoofdstuk onderzoeken we hoe ook persoonlijkheidsvariabelen die niet rechtstreeks gerelateerd zijn aan het beslissingenproces, mensen hun productkeuzes kunnen beïnvloeden. We focussen ons daarvoor op de aspiratie die mensen hebben om er goed uit te zien als persoonlijkheidsvariabele. We veronderstellen namelijk dat mensen die er graag goed willen uitzien, ook meer geneigd zullen zijn om producten te kopen met een mooie verpakking, omdat ze een mooi-is-goed heuristiek volgen. We benadrukken hierbij dat het gaat om simpele producten die mensen frequent kopen, en die vooral geen enkele invloed kunnen hebben op deze mensen hun eigen aantrekkelijkheid. Met andere woorden, de keuze voor deze mooie producten kan niet verklaard worden vanuit hun eigen aspiratie om er mooi uit te zien. In een eerste studie tonen we aan dat mensen met een sterke aspiratie om er goed uit te zien, inderdaad meer kwaliteit toeschrijven aan producten met een mooie verpakking.

Ze vinden namelijk chocolaatjes lekkerder wanneer ze gepresenteerd worden in een mooie verpakking dan in een lelijke verpakking. De tweede studie demonstreert dat mensen die er graag mooi willen uitzien, meer geneigd zijn om shampoo te kopen met een mooie verpakking dan met een lelijke verpakking. Deze neiging om producten met mooie verpakkingen te kopen kan verklaard worden door twee onafhankelijke processen. Enerzijds schrijven ze in het algmeen meer kwaliteit toe aan producten die er goed uitzien, en anderzijds hebben ze een algemene appreciatie voor de esthetiek van producten. De derde studie toont aan waarom mensen die er goed willen uitzien producten met een mooie verpakking verkiezen. De verklaring hiervoor is dat mensen die er zelf goed willen uitzien, sterk geloven dat mooi zijn tot heel wat positieve uitkomsten leidt, en dit geloof in mooi-is-goed oververalgemenen naar een consumentencontext. Een vierde en laatste studie toont aan dat deze tendens om mooie producten te kopen gemodereerd wordt door de prominente aanwezigheid van kwaliteitsinformatie. Wanneer de producten met mooie verpakking duidelijk een inferieure kwaliteit hebben, zijn deze mensen niet langer geneigd om deze producten te kopen omdat ze geen kwaliteitsinferenties meer hoeven te maken. Aangezien de kwaliteitsinformatie van simpele producten echter zelden of nooit prominent aanwezig is wanneer we aankoopbeslissingen nemen, zullen mensen die er graag mooi uitzien alsnog meer geneigd zijn dan anderen om producten te kopen die er simpelweg mooi uitzien. Hun overtuiging dat mooie producten ook betere producten zijn, zou echter opnieuw tot suboptimale keuzes kunnen leiden.

Het vijfde hoofdstuk focust zich opnieuw op de levensdoelen die mensen voor ogen kunnen hebben. We maken daarbij een onderscheid tussen extrinsieke en intrinsieke doelen in navolging van de zelfdeterminatie theorie. Extrinsieke doelen omvatten de doelen om rijk, beroemd, en mooi te zijn. Intrinsieke doelen omvatten daarentegen de aspiraties om aan zelfontwikkeling te doen, bij te dragen aan de maatschappij, en goede relaties te onderhouden met anderen. Deze laatste doelen zijn intrinsieke doelen omdat ze de psychologische noden aan autonomie, competentie, en verbondenheid direct bevredigen. Heel wat onderzoek heeft aangetoond dat mensen die eerder extrinsieke dan intrinsieke doelen nastreven in hun leven, over het algemeen minder gelukkig zijn. In dit onderzoek stellen we ons de vraag of extrinsieke doelen eerder dan intrinsieke doelen ook kunnen leiden tot het maken van suboptimale keuzes. Meer bepaald willen we nagaan wat de invloed is van deze levensdoelen op partnerkeuze. In een eerste studie tonen we aan dat mannen die extrinsiek georiënteerd zijn meer waarde hechten aan de aantrekkelijkheid van een vrouw, terwijl intrinsiek georiënteerde mannen meer belang hechten een haar intelligentie. Een tweede studie toont aan dat de

levensdoelen die mensen nastreven niet alleen de partnerkeuze van mannen, maar ook die van vrouwen kunnen bepalen. Bovendien tonen we aan dat mensen die extrinsieke doelen nastreven minder gelukkig zijn in hun relatie omdat ze meer waarde hechten aan uiterlijk dan aan innerlijk bij het selecteren van een partner. De focus van extrinsiek georiënteerde mensen op de aantrekkelijkheid van een partner is dus duidelijk suboptimaal aangezien het zelfs tot een lager relationeel en dus ook algemeen welbevinden kan leiden.

We kunnen dus besluiten dat persoonlijkheidsvariabelen wel degelijk tot suboptimale keuzes kunnen leiden. Sommige mensen zijn dus meer geneigd dan anderen om voorbij te gaan aan de rationaliteit bij het nemen van beslissingen.

ENGLISH SUMMARY

People face many challenges in making good decisions. Researchers have shown extensively how people's rationality is bounded by both people's cognitive limitations and the complexity of the environment. Moreover, researchers have shown that people also use their apparent emotions to make decisions. Due to these cognitive, situational, and emotional factors, people make decisions that deviate from rationality as they abandon the laws of logic and follow simple decision strategies. While previous research has focused on *how* and *when* people make suboptimal decisions, the current dissertation aims to gain insight in *who* is more likely to make these suboptimal choices. In doing so, we will focus on several personality measures that may clarify why people make suboptimal choices.

In chapter II "Less is More: Why Some Domains are More Positional than Others", we focus on a specific type of irrational choice, i.e. people's striving to be better off than others. An extensive body of research has demonstrated that for some domains people prefer to have more of a good than others rather than having more of a good overall as they are concerned about their status (positional concern), which is their position in society or within a reference group (e.g., Alpizar, Carlsson, & Johansson-Stenman, 2005; Carlsson, Johansson-Stenman, & Martinsson, 2007; Solnick & Hemenway, 1998, 2005). People's quest for status is not very surprising as it provides access to a host of valuable resources (Frank, 1987; Sen, 1983) and even is valued intrinsically (Huberman, Loch, & Önçüler, 2004). As such, choosing to be better off than others is thus not per definition an irrational choice. Especially for positional goods, i.e. goods whose value depends relatively strongly on how they compare with things owned by others (Frank, 1985), choosing to have more than others is actually a very rational thing to do. However, from a societal point of view, the competition for positional goods is essentially a zero sum game, making the resources invested in this competition socially wasted (Weiss & Fershtman, 1998). The preference to be better off than others, even for positional goods, is thus to some extent a suboptimal decision. Previous research has demonstrated that relative outcomes are more important than absolute outcomes in some situations. In this essay, we demonstrate that some *people* are more likely than others to have a preference for relative outcomes. In particular, we show that habitual comparison makers are more concerned about their relative position. Because comparing oneself with others also stimulates the desire to compete, social comparison induces people to work to outperform

others, even though a far more rational choice would be to pursue an outcome that would leave them better off in absolute terms.

In chapter III, “To Like or Not to Like? Individual Differences in Evaluation Difficulty”, we focus on what could go wrong in the first step of the decision-making process. To make good decisions, people should have a clear idea of what they want. However, in the second essay of this dissertation, we argue that some people have a hard time to know what they like versus dislike. As making evaluative judgments are a fundamental step in the decision-making process, we believe that it is highly relevant to understand the difficulties people may encounter with making evaluations. Therefore, we introduce and validate an evaluation difficulty scale that measures to what extent people struggle to make evaluative judgments. In a first study, we show that people who have trouble evaluating are more likely to experience the negative effects of too many choice options. In a second study, we demonstrate that this evaluation difficulty scale predicts the use of simple decision strategies, such as the price-quality heuristic. In particular, we demonstrate that people who struggle to evaluate, express more trust in price information than in their own taste evaluations. Moreover, we show that people who have a hard time evaluating are less likely to make accurate evaluations in the absence of a diagnostic cue. In summary, people who find it hard to make evaluations in general, are more likely to make suboptimal choices as they follow simple decision strategies instead of drawing on their own evaluation skills.

In chapter IV “Judging by appearances: the effect of consumers’ physical appearance aspirations on product preferences”, we focus our attention again to consumers and their product preferences. When shopping for basic consumer products, people can decide to buy the product they are always buying, buy the cheapest product, or even buy the most beautiful product. While the package design of a basic product should not guide people’s purchase decisions, they do affect people’s choices. Previous research has demonstrated that people evaluate visually appealing products more positively (Page & Herr, 2002; Yamamoto & Lambert, 1994), though generally without investigating the process that determines preferences for products with appealing packages. In this essay, we demonstrate that quality inferences related to appealing packaging are not universal but rather depend on whether each consumer aspires to be physically attractive. People who strongly desire to look good themselves, also exhibit a preference for products with nice-looking packages, even if the products have no bearing on the physical attractiveness of the consumers. Study 1 shows that people who want to have an appealing appearance like chocolates better when they are presented in a beautiful box compared to an ugly box. Study 2 demonstrates that this

preference for nice-looking products does not reflect just the higher centrality of visual product characteristics. Study 3 explains why people who want to look good follow a beauty-is-good heuristic to evaluate simple consumer products. In particular, we show that consumers who aspire to physical attractiveness think that being beautiful is associated with several positive outcomes, and, consequently, overgeneralize the inference rule that beauty-is-good to evaluate basic consumer products. Finally, Study 4 confirms that consumers who value physical attractiveness only apply this beauty-is-good heuristic when they have to make inferences about the quality of products. We show that when objective quality information is salient, the relation between physical appearance aspirations and a preference for nice-looking products disappears. In combination, these findings suggest that consumers prefer products with nice appearances because the appealing package elicits expectations of higher quality, at least among consumers who aspire to look good themselves. As such, people with strong appearance aspirations are more likely to make suboptimal product choices as they overweigh the effect of package design on product quality.

Chapter V "More than meets the eye: The relation between extrinsic versus intrinsic goal pursuit, mate preferences and romantic relationship well-being" broadens our scope from basic product decisions to mate selection, which is one of most important decisions in life. The selection of a partner to spend one's life with may have a tremendous influence on how happy people will be in their relationship. Moreover, being happy in one's relationship is an important source of happiness overall (Dush & Amato, 2005; Reis, Collins, & Berscheid, 2000). Mate selection could thus be an important determinant of both relationship and individual well-being. When making a choice between a good-looking, but uncommitted person and an average-looking, yet loving person, it would make more sense to choose the second partner to start a long-term relationship with. However, some people may be blinded by the looks and place more value on outer compared to inner beauty in selecting a romantic partner. In the current essay, we investigate whether individual differences in goal pursuit are associated with differences in the qualities people value in a romantic partner. Previous research has demonstrated the people with a strong desire to attain extrinsic goals such as image, fame and wealth, in contrast with intrinsic goals such as personal growth, close relationships fostering, or community involvement, are motivated to be praised by others (e.g., Sheldon, Ryan, Deci, & Kasser, 2004). As physical attractiveness is a highly desirable partner characteristic (e.g., Buss & Barnes, 1986; Furnham, 2009; Regan, Levin, Sprecher, Christopher, & Gate, 2000) that is visible to other people, having an attractive partner might be instrumental behavior to gain positive feedback from other people. Two studies show that

extrinsically oriented people are indeed more likely to select a partner with desirable external qualities (i.e., attractive appearance), while intrinsically oriented people value the internal qualities of a partner (i.e., abilities and personality characteristics) more. Study 3 demonstrates that the goals people pursue in their lives indirectly affect people's relationship well-being through their partner preference. As such, it seems that extrinsically oriented people are less happy with their relationship because they focus too much on external characteristics when choosing a life partner.

In summary, some personality measures do predict to what extent people make suboptimal choices. We may thus conclude that some people are indeed more likely than others to make choices beyond rationality.

CHAPTER 1

INTRODUCTION

CHAPTER I: INTRODUCTION

1. THE CHALLENGES OF MAKING RATIONAL DECISIONS

Nowadays, consumers have the possibility to choose from a seemingly inexhaustible array of product alternatives. According to most choice theories in psychology and economy, people should always have a preference, and, consequently, should always find a product that ticks every box. However, several steps in the decision-making process might go wrong, resulting in suboptimal decisions. To begin with, consumers have to know what they want (Schwartz, 2004). However, consumers might not always have a clear preference (Bettman, Luce, & Payne, 1998), making it even hard to decide which movie one wants to see, which restaurant to choose, or which color of sweater one prefers. When faced with these choices, consumers have to predict how the experience would make them feel; that is the expected utility. Consumers should then choose the option that would maximize their expected utility (Edwards, 1954). Nevertheless, an extensive body of research has demonstrated that people often make systematic errors when predicting the hedonic outcomes of potential choices (see Kahneman & Thaler, 2006 for an overview). In short, consumers can easily fail to know what they want, and consequently make suboptimal decisions.

When consumers (think they) know what they want, they have to select the best available option to satisfy these goals. In doing so, they will have to evaluate the importance of each goal, array the options, and evaluate how likely each of the options is to the reach these goals (Schwartz, 2004). To make such a rational, well-considered choice, people need complete information (Edwards, 1954). According to rational choice theory, people should always take all the relevant information into account. In reality, however, people do not always have a lot of time, sufficient motivation, or the cognitive capacities to make rational choices. People's rationality is thus bounded by both internal and external limitations (Simon, 1955).

Due to this bounded rationality, people use simple strategies or heuristics to make decisions (Simon, 1955; Todd & Gigerenzer, 2003). At first, researchers linked these decision short-cuts to biased or erroneous decisions (Kahneman, 2003; Tversky & Kahneman, 1974). According to this heuristics-and-biases framework, people are prone to make mistakes as they neglect part of the available information, abandon the laws of logic, and use suboptimal decision strategies (Marewski, Gaissmaier, & Gigerenzer, 2010). Later on, researchers

acknowledged that heuristics should be adapted to the environment to be *ecologically rational* (Gigerenzer et al., 1999). People should not use an overall decision strategy to solve every task ahead, but apply specific rules of thumb to specific situations. Based on their core capacities, such as vision or memory, people can use a wide range of heuristics – or an adapted toolbox of heuristics – to make quicker and more frugal decisions compared to more complex strategies (Gigerenzer & Gaissmaier, 2011; Gigerenzer et al., 1999; Marewski et al., 2010). As such, the use of simple heuristics does not necessarily lead to bad decisions, and can even outperform more complex decision methods (Gigerenzer & Brighton, 2009).

In summary, classic choice theories in psychology and economy state that people should follow logic decision strategies based on all the relevant information to make good decisions. However, we are not living in an ideal world, but rather in a biased world where rational decisions face many challenges. An extensive body of research conducted by Kahneman and colleagues has demonstrated how several cognitive flaws of the human mind may results in suboptimal choices. We are also living in a complex world where people have only limited time to choose from an ever-growing array of product alternatives. As a consequence of their bounded rationality, people follow simple decision strategies that lead to decisions that deviate – at least in part – from rationality. Next, we will give a short overview of those limitations to demonstrate the challenges people may face to make rational decisions.

2. BOUNDED RATIONALITY: INTERNAL AND EXTERNAL LIMITATIONS

To make good decisions, people need good information. In every process, from collecting to evaluating that information, the human mind might make mistakes though. Due to people's limited cognitive capacities, the information might be biased, making it hard to make rational decisions. In addition, the overload of choice options could make it even harder to make rational choices. Finally, people also let their emotions guide their decisions.

2.1 Gathering information

When people make choices, they may have to search for information that is not immediately available. In gathering information, people can rely both on their own previous experiences, as well as on the experiences of others (Schwartz, 2004). When people count on

previously gathered knowledge, they should remember their past experiences correctly. However, people seem to have trouble remembering how much they liked a previous experience. Several researchers (e.g., Do, Rupert, & Wolford, 2008; Fredrickson & Kahneman, 1993; Schreiber & Kahneman, 2000) have demonstrated that people merely remember how they felt at the peak, positive or negative, and at the end of an experience (for an overview, see Fredrickson, 2000). In an interesting experiment, Kahneman and colleagues (1993) asked participants to put their hand in ice-cold water of 14 degrees for 60 seconds. Next, they had to put their other hand in ice-cold water of 14 degrees for 60 seconds, and immediately in almost equally cold water of 15 degrees for 30 seconds. Afterwards, they could choose which experience they wanted to repeat. In line with the peak-end rule, yet in contrast with rationality, people preferred to repeat the longest trial as the end of that experience was less painful. In general, how people remembered they felt does not necessarily reflect how they actually felt. In other words, their remembered utility is mostly not aligned with their experienced utility (Schwartz, 2004). As people count on this summary of their past experience to determine future choices, they are prone to make mistakes.

In addition to people's own experiences, they can gather information through the experiences of others. However, the source of information may affect their decisions more than it should according to the laws of logic. For example, people can count on review scores of thousands of other travelers before choosing a hotel. Imagine that the overall evaluation of all those travelers would be very positive. However, one friend tells a story about someone who had a bad experience at that hotel. While that one story should not affect their decision based on thousands of reviews, people do assign more weight to such face-to-face information as these experiences are extremely vivid (Schwartz, 2004). Off course, following the advice of a friend over an anonymous review could also be a very rational thing to do. The relationship between oneself and the source of information is much closer, and one may assume to be much more similar to one's friend and thus share the same values. Nevertheless, merely gathering relevant information might already result in suboptimal choices.

2.2 Processing information

The ease of processing the information could have an impact on the ensuing evaluation. Previous research has demonstrated that the more fluently people process information, the more positive their evaluation usually is. For example, Lee and Labroo (2004) demonstrated

that people like an image of ketchup better when an advertisement of mayonnaise preceded as both constructs are strongly related (conceptual fluency). Similarly, the mere-exposure effect shows that people like a neutral stimuli better when they can process it more frequently, and thus, more fluently (perceptual fluency; Bornstein 1989; Zajonc 1968). Reber, Winkielman, and Schwarz (1998) confirmed that processing fluency enhances liking, and demonstrated that processing fluency is affective in itself. As such, people misattribute their positive feelings related to the ease of processing to the subject of evaluation. Moreover, researchers have demonstrated that people's choices are also affected by process-induced *negative* affect. Garbarino and Edell (1997) found that people are less likely to choose an alternative that requires more cognitive effort to evaluate than an alternative that is less effortful to evaluate. In summary, the way people process information affects the choices they make. Consequently, these choices may deviate from rationality.

2.3 Evaluating information

When people evaluate information, they are prone to abandon the laws of logic in many ways. How information is presented, for instance, may have an unexpected impact on how people evaluate that information. For example, researchers have demonstrated that the unit in which the same information is specified may lead to preference reversals (Burson, Larrick, & Lynch, 2009). Indeed, Pandelaere, Briers and Lembregts (2011) showed that people are more likely to choose the high-quality option when the quality information is expressed on an expended scale (e.g., 2-year warranty vs. 24-month warranty). This so-called unit effect occurs because people focus more on the number than on the type of units in which information is presented (Pandelaere et al., 2011). Another presentation effect, the so-called framing effect, has been demonstrated by Tversky and Kahneman (1981). They found that people's choices depend on whether information is presented as a gain or a loss. People tend to avoid risk when a choice is presented in a positive frame, and they seek risks when a choice is presented in a negative frame. Depending on the framing, people thus choose more or less risky.

Moreover, researchers have demonstrated that not only differences in evaluation scale (e.g., Bazerman, Loewenstein, & White, 1992), but also differences in evaluation mode may result in preference reversals (Hsee, Loewenstein, Saly, & Bazerman, 1999; Hsee & Zhang, 2004; Hsee, 1996). According to Hsee and Zhang's (2010) general evaluability theory, people

can engage in both single and joint evaluation (see also Hsee 1996, Hsee and Zhang 2004). When people engage in a single evaluation (SE), they have to make an evaluation in an isolated modus, without direct comparisons. In joint evaluations (JE), one value can serve as a reference to evaluate another as people can compare different options (Hsee and Zhang 2010). According to the evaluability hypothesis, difficult-to-evaluate attributes become easier to evaluate in JE compared to SE, and thus exert a greater impact on people's choices in JE compared to SE. As such, people's choices may reverse depending on the evaluation mode (Hsee et al., 1999; Hsee, 1996). In addition, the distinction bias posits that people are prone to make mistakes in JE as they overpredict the difference that different values of an attribute (e.g., income) will make to their happiness, which is typically experienced in SE (Hsee & Zhang, 2004). In sum, people's evaluations are not merely based on the information itself, which may lead again to erroneous decisions.

2.4 Having too much information

People are only capable of processing a certain amount of information (Eppler & Mengis, 2004). When they receive too much information, the quality of their reasoning may rapidly decline (Chewning & Harrell, 1990; Eppler & Mengis, 2004; Malhotra, 1982). An extensive body of research in various disciplines such as organization science, accounting and marketing, has demonstrated that information overload results in decreased performance in terms of decision making and general reasoning (Eppler & Mengis, 2004). In the domain of marketing and consumer research in particular, researchers refer to information overload when the available information exceeds individuals' capacity to process this information (Eppler & Mengis, 2004; Malhotra, 1982). As a consequence of this information overload, consumers make inaccurate decisions and experience feelings of stress and anxiety (Eppler & Mengis, 2004; Malhotra, 1982).

Consumer research on information overload has mainly focused on the effects of many product alternatives (e.g., various brand alternatives) on product choices (e.g., Jacoby, Speller, & Kohn, 1974). The so-called "paradox of choice" (Schwartz, 2004) has been investigated thoroughly in the domain of consumer psychology and decision making (Botti & Hsee, 2010; Botti & Iyengar, 2004; Dhar, 1997; Iyengar & Lepper, 2000; Scheibehenne, Greifeneder, & Todd, 2010). According to classic choice theories, people should always have a preference, even if they have the possibility to choose from a seemingly inexhaustible array of product

alternatives (Scheibehenne et al., 2010; Schwartz, 2000). Nevertheless, having a lot of options does not necessarily increase people's consumer satisfaction. An extensive body of research has demonstrated that consumers can even experience negative effects of too much choice. In an interesting set of experiments, Iyengar and Lepper (2000) demonstrated that people are more likely to buy jam and chocolates, or to write an optional essay, when they had to choose from a limited array of six choices compared to an extensive array of 24 or 30 choices. Moreover, people who could choose from the small choice set were not only more motivated to choose, but they also reported a higher satisfaction with their choices, and even wrote better essays (Iyengar & Lepper, 2000). Other researchers have also shown that too many choices lead to decreased motivation to choose, and may even results in no choice at all (Dhar, 1997). In short, situations in which people are overwhelmed by choice are quite challenging to make rational choices.

2.5 Following one's heart

To make rational decisions, people should simply count on their ratio. Nevertheless, their emotions might affect their decisions as well. A large body of research has demonstrated that people's emotions can profoundly influence people's cognitive processes (for an overview see Schwarz & Clore, 1996). For instance, people can more easily recall information that is congruent with their current emotions (Bower, 1981). Moreover, people use their feelings as a basis of judgment. Researchers have demonstrated that how people feel at the moment of evaluation affects their decisions because they use their mood and apparent emotions as information to form their decisions (Schwarz & Clore, 1996; Schwarz, 2000, 2004). In short, people do not only use declarative information, but also count on experiential information to make up their minds (Schwarz, 2004). As emotional choices are rarely rational choices, following one's heart could also results in suboptimal choices.

Taking together, an extensive body of research has demonstrated that mind, emotion, and situation affect the choices people may make. Consequently, people's decisions may deviate from rationality. However, some people might be more likely to make suboptimal choices than others. To demonstrate that decision making is indeed a personality skill, we will discuss several personality measures that relate to the decision-making process.

3. DECISION MAKING IS A SKILL

Several researchers have introduced individual difference measures in decision making. These personality measures of decision making can be divided into three general (yet overlapping) categories: decision-making style, decision-making approach, and decision-making competence (Appelt, Milch, Handgraaf, & Weber, 2011). The category decision-making style includes both decision style measures, cognitive style measures, and measures of epistemic motivation. These decision-making style measures assess how people think in general, and how they apply these thinking styles to make decisions. The category decision-making approach includes measures that assess various aspects of individuals' management of decision making, both before and after decisions are made. As such, they measure how people handle decisions in a more concrete way compared to the more abstract way of thinking that is measured in the decision-making style category. Finally, the decision-making competence category includes measures to assess how good people are in making particular decisions. While these three categories of decision making are not clear-cut, and may show some overlap, we will give some examples for each of them to demonstrate how people can make different decisions, depending on their personality.

3.1 Decision-making style

To make decisions, people can count both on cognition and emotions. Epstein and colleagues (1996) introduced an individual difference variable that measures the extent to which people characteristically operate in a rational (cognitive) or an experiential (emotional) decision mode. This rational-experiential inventory (REI) consists of two independent scales: the need for cognition scale (NFC; Cacioppo & Petty, 1982) assesses the extent to which people follow a rational decision mode, while the faith in intuition scale (FI) measures the degree to which people operate in an experiential decision mode. People who score high on the need for cognition like to engage in effortful cognitive activities (e.g., "I like to have the responsibility of handling a situation that requires a lot of thinking"). People who score high on the faith in intuition scale, in contrast, strongly rely on their intuitive feelings about others (e.g., "I trust my initial feelings about people"). Other researchers have introduced individual difference scales that focus on the same distinction between rational versus experiential. For instance, Nygren and White (2002) introduced a scale to assess how people typically go about

making decisions. They make a distinction between analytical (e.g., “I feel that if I plan my decisions carefully I will make good decisions”), intuitive (e.g., “Simple decision rules usually work best for me”*),* and regret-based (e.g., “I tend to be someone who worries a lot over decisions I’ve made”) decision-making styles. Finally, a widespread motivational measure that also relates to how people make decisions is the need for cognitive closure scale (NFCS, Webster & Kruglanski, 1994). This individual difference variable assesses the extent to which people prefer any solution over confusion and ambiguity (e.g., “When I am confronted with a problem, I’m dying to reach a solution very quickly”*).* People who score high on the need for closure scale are thus more likely to make fast, intuitive decisions compared to well-considered, rational choices.

3.2 Decision-making approach

People also differ in how they handle the decision-making process. Their approach can differ both before and after the decisions are made. For example, some people tend to go back and forth when making decisions (Ruminative thought style; e.g., “I find that my mind often goes over things again and again”; Brinker & Dozois, 2009). Other people tend to regret their decisions afterwards (Regret scale; e.g., “Whenever I make a choice, I’m curious about what would have happened if I had chosen differently”; Schwartz et al., 2002). Schwartz and colleagues (2002) also introduced the Maximization scale (e.g., “No matter how satisfied I am with my job, it’s only right for me to be on the lookout for better opportunities”) to assess to what extent people tend to maximize or satisfice when making decisions. According to rational choice theory, people should maximize their outcomes. However, due to their bounded rationality, people cannot optimize their goals, and should rather pursue the goal of “satisficing” (Schwartz et al., 2002; Simon, 1955). People who satisfy simply choose the option that is good enough, rather than pursuing the best available option. Schwartz and colleagues (2002) demonstrated that especially people who are motivated to make the best possible choice (i.e., maximizers), experience more feelings of stress when they have a lot of choice alternatives, and are more likely to regret their choice afterwards.

3.3 Decision-making competence

Some people are better decision makers than others. Several personality measures aim to assess to what extent people are skilled to make good decisions. For example, the adult decision-making competence index (A-DMC), consisting of a set of 7 behavioral decision-making tasks, measures how well people make decisions. Other researchers introduced individual difference variables to assess how good people are in a particular decision-related skill, such as the ability to handle numbers (numeracy; Peters et al., 2006). Another individual difference variable that might fall under this category is to what extent people find it hard to make decisions. Turner and colleagues (2012) introduced the decision difficulty scale (e.g., "I usually have a hard time making even simple decisions") as one of three subscales of the maximization inventory. This scale does not measure people's ability to make good choices, but assess to what extent they believe they are bad decision makers.

In summary, people can differ a lot in how they make decisions. Some people are indeed better decision makers than others. Decision making is a skill, and a very valuable and important one as good decisions can make people happy.

4. THE ROAD TO HAPPINESS

Researchers have demonstrated that people can experience feelings of stress when they have to make simple product choices. Especially people who want to make the best possible choice experience more negative affect from too many choice options (Schwartz et al., 2002). Moreover, researchers have shown that these maximizers are in general less happy, less optimistic, and less satisfied with their lives, and experience more regret and depression (Schwartz et al., 2002). If choosing the right product could already be very stressful, what about making decisions that really matter?

To make important life decisions, people may face the same challenges as we discussed before. For example, when looking for a new job, people have to know first what kind of job they would like to do. However, this might not always be easy, especially for people who start looking for a job for the first time, as they cannot count on previous experiences to know what they like to do. Next, when people have to choose between several potential jobs, they may have to weigh certain job characteristics against each other. For example, people may have to make a trade-off between salary and commute time. At first glance, people may prefer the job

with the highest salary over the job with the shortest commute time because they expect that the longer commute time will not be that bad. However, when they actually start working, the commute time turns out worse than expected. While they made their choice for a longer commute time in a joint evaluation mode, they actually experience it in a single evaluation mode. In line with the distinction bias, people overestimate the extent to which a longer commute time or a higher salary will make to their happiness, which is typically experienced in a single evaluation mode (Hsee & Zhang, 2004). As a consequence, people may make the wrong choices, and regret them afterwards.

Thus, making important decisions face the same challenges as making simple decisions. Nevertheless, important decisions may have a much stronger impact on people's subjective well-being. Choosing what to study, choosing where to build a house, and choosing a partner to spend one's life with, are highly important decisions that could affect people's subjective well-being to a great extent. While making the right decisions could increase people's happiness, making the wrong decisions could be detrimental for their subjective well-being. As such, it is highly relevant to gain insight in the choices people make. Therefore, the current dissertation aims to understand why people make suboptimal choices. In particular, we investigate to what extent individual differences variables may lead to suboptimal decisions.

5. DISSERTATION OUTLINE

To sum up, several researchers have demonstrated that people face many challenges in making good decisions. Researchers have shown extensively how people's rationality is bounded by both people's cognitive limitations and the complexity of the environment. Moreover, researchers have shown that people also use their apparent emotions to make decisions. Due to these cognitive, situational, and emotional factors, people make decisions that deviate from rationality as they abandon the laws of logic and follow simple decision strategies. While previous research has focused on *how* and *when* people make suboptimal decisions, the current dissertation aims to gain insight in *who* is more likely to make these suboptimal choices. In doing so, we will focus on several personality measures that may clarify why people make suboptimal choices. Previous research has introduced many personality measures to assess how people make decisions. In the current dissertation, however, we will introduce a new decision-related personality measure that aims to assess a fundamental step in the decision-making process. Moreover, we will focus on personality

measures that are not directly related to how people make decisions, such as people's social comparison orientation and their extrinsic versus intrinsic goal pursuit. In doing so, we will explain a variety of suboptimal choices ranging from product choices to the selection of a life partner.

In chapter II "Less is More: Why Some Domains are More Positional than Others", we focus on a specific type of irrational choice, i.e. people's striving to be better off than others. An extensive body of research has demonstrated that for some domains people prefer to have more of a good than others rather than having more of a good overall as they are concerned about their status (positional concern), which is their position in society or within a reference group (e.g., Alpizar, Carlsson, & Johansson-Stenman, 2005; Carlsson, Johansson-Stenman, & Martinsson, 2007; Solnick & Hemenway, 1998, 2005). People's quest for status is not very surprising as it provides access to a host of valuable resources (Frank, 1987; Sen, 1983) and even is valued intrinsically (Huberman, Loch, & Önçüler, 2004). As such, choosing to be better off than others is thus not per definition an irrational choice. Especially for positional goods, i.e. goods whose value depends relatively strongly on how they compare with things owned by others (Frank, 1985), choosing to have more than others is actually a very rational thing to do. However, from a societal point of view, the competition for positional goods is essentially a zero sum game, making the resources invested in this competition socially wasted (Weiss & Fershtman, 1998). The preference to be better off than others, even for positional goods, is thus to some extent a suboptimal decision. Previous research has demonstrated that relative outcomes are more important than absolute outcomes in some situations. In this essay, we explain why some domains are more positional than others, and, moreover, we demonstrate that some *people* are more likely than others to have a preference for relative outcomes. In particular, we show that habitual comparison makers are more concerned about their relative position. Because comparing oneself with others also stimulates the desire to compete, social comparison induces people to work to outperform others, even though a far more rational choice would be to pursue an outcome that would leave them better off in absolute terms.

In chapter III, "To Like or Not to Like? Individual Differences in Evaluation Difficulty", we focus on what could go wrong in the first step of the decision-making process. To make good decisions, people should have a clear idea of what they want. However, in the second essay of this dissertation, we argue that some people have a hard time to know what they like versus dislike. As making evaluative judgments are a fundamental step in the decision-making process, we believe that it is highly relevant to understand the difficulties people may

encounter with making evaluations. Therefore, we introduce and validate an evaluation difficulty scale that measures to what extent people struggle to make evaluative judgments. In a first study, we show that people who have trouble evaluating are more likely to experience the negative effects of too many choice options. In a second study, we demonstrate that this evaluation difficulty scale predicts the use of simple decision strategies, such as the price-quality heuristic. In particular, we demonstrate that people who struggle to evaluate express more trust in price information than in their own taste evaluations. Moreover, we show that people who have a hard time evaluating are less likely to make accurate evaluations in the absence of a diagnostic cue. In summary, people who find it hard to make evaluations in general, are more likely to make suboptimal choices as they follow simple decision strategies instead of drawing on their own evaluation skills.

In chapter IV "Judging by appearances: the effect of consumers' physical appearance aspirations on product preferences", we focus our attention again to consumers and their product preferences. When shopping for basic consumer products, people can decide to buy the product they are always buying, buy the cheapest product, or even buy the most beautiful product. While the package design of a basic product should not guide people's purchase decisions, they do affect people's choices. Previous research has demonstrated that people evaluate visually appealing products more positively (Page & Herr, 2002; Yamamoto & Lambert, 1994), though generally without investigating the process that determines preferences for products with appealing packages. In this essay, we demonstrate that quality inferences related to appealing packaging are not universal but rather depend on whether each consumer aspires to be physically attractive. People who strongly desire to look good themselves, also exhibit a preference for nice-looking products, even if the products have no bearing on the physical attractiveness of the consumers. Study 1 shows that people who want to have an appealing appearance like chocolates better when they are presented in a beautiful box compared to an ugly box. Study 2 demonstrates that this preference for nice-looking products does not reflect just the higher centrality of visual product characteristics. Study 3 explains why people who want to look good follow a beauty-is-good heuristic to evaluate simple consumer products. In particular, we show that consumers who aspire to physical attractiveness think that being beautiful is associated with several positive outcomes, and, consequently, overgeneralize the inference rule that beauty-is-good to evaluate basic consumer products. Finally, Study 4 confirms that consumers who value physical attractiveness only apply this beauty-is-good heuristic when they have to make inferences about the quality of products. We show that when objective quality information is salient, the

relation between physical appearance aspirations and a preference for nice-looking products disappears. In combination, these findings suggest that consumers prefer products with nice appearances because the appealing package elicits expectations of higher quality, at least among consumers who aspire to look good themselves. As such, people with strong appearance aspirations are more likely to make suboptimal product choices as they overweigh the effect of package design on product quality.

Chapter V "More than meets the eye: The relation between extrinsic versus intrinsic goal pursuit, mate preferences and romantic relationship well-being" broadens our scope from basic product decisions to mate selection, which is one of most important decisions in life. The selection of a partner to spend one's life with may have a tremendous influence on how happy people will be in their relationship. Moreover, being happy in one's relationship is an important source of happiness overall (Dush & Amato, 2005; Reis, Collins, & Berscheid, 2000). Mate selection could thus be an important determinant of both relationship and individual well-being. When making a choice between a good-looking, but uncommitted person and an average-looking, yet loving person, it would make more sense to choose the second partner to start a long-term relationship with. However, some people may be blinded by the looks and place more value on outer compared to inner beauty in selecting a romantic partner. In the current essay, we investigate whether individual differences in goal pursuit are associated with differences in the qualities people value in a romantic partner. Previous research has demonstrated the people with a strong desire to attain extrinsic goals such as image, fame and wealth, in contrast with intrinsic goals such as personal growth, close relationships fostering, or community involvement, are motivated to be praised by others (e.g., Sheldon, Ryan, Deci, & Kasser, 2004). As physical attractiveness is a highly desirable partner characteristic (e.g., Buss & Barnes, 1986; Furnham, 2009; Regan, Levin, Sprecher, Christopher, & Gate, 2000) that is visible to other people, having an attractive partner might be instrumental behavior to gain positive feedback from other people. Two studies show that extrinsically oriented people are indeed more likely to select a partner with desirable external qualities (i.e., attractive appearance), while intrinsically oriented people value the internal qualities of a partner (i.e., abilities and personality characteristics) more. Study 3 demonstrates that the goals people pursue in their lives indirectly affect people's relationship well-being through their partner preference. As such, it seems that extrinsically oriented people are less happy with their relationship because they focus too much on external characteristics when choosing a life partner.

CHAPTER 2

LESS IS MORE: WHY SOME DOMAINS ARE MORE POSITIONAL THAN OTHERS[1]

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CHAPTER II: LESS IS MORE: WHY SOME DOMAINS ARE MORE POSITIONAL THAN OTHERS

Status is an important motivator of human behavior (Duesenberry, 1949; Veblen, 1899). The quest for status is not surprising, in that it provides access to a host of valuable resources (Frank, 1987; Sen, 1983) and even is valued intrinsically (Huberman, Loch, & Önçüler, 2004). Extensive research has shown that people are concerned about their status (*positional concern*), which is their position in society or within a reference group (e.g., Alpizar, Carlsson, & Johansson-Stenman, 2005; Carlsson, Johansson-Stenman, & Martinsson, 2007; Solnick & Hemenway, 1998, 2005). Having more of a status good than others have thus might be more satisfying than simply possessing a lot of the good. That is, relative outcomes may be more important than absolute outcomes.

Research affirms this prediction (Solnick & Hemenway, 1998). People who are often compared with their siblings during their childhoods care substantially more about their relative position (Lampi & Nordblom, 2010). Various studies also indicate that people care more about their relative position in some domains than in others (Hillesheim & Mechtel, 2013; Solnick & Hemenway, 1998, 2005), such as with regard to income rather than number of vacation days (Carlsson et al., 2007). Despite this extensive evidence of positional concerns, the reasons that some domains appear more positional than others remain unclear. Several authors suggest level of visibility might have an effect; for example, Alpizar et al. (2005) postulate that highly visible domains tend to be more positional. Being concerned about relative position certainly seems more likely in domains in which others can observe the outcomes.

Yet visibility cannot fully explain domain differences with regard to positional concern. Accordingly, we propose that domain differences in positional concern are rooted in differences in social comparison. That is, domain differences may be associated with differences in the extent to which different domains elicit social comparisons and trigger competitive mindsets. The proposed link between social comparison and positional concern explains not only why domains differ in the positional concern they elicit but also why people differ in their expressed positional concerns. As such, this article contributes to literature on both positional concern and social comparison.

1. THEORETICAL BACKGROUND

1.1 Positional concern

Positional concern is the extent to which a person is concerned about his or her status or position in a reference group. To measure positional concerns, Solnick and Hemenway (1998, 2005) developed the Positional Concern Questionnaire, which requires respondents to indicate, across multiple domains, which of two outcomes they would prefer. One option is superior from an absolute point of view but inferior from a relative point of view (e.g., working in a company and earning USD50,000 while others earn USD60,000), whereas the other option is superior from a relative point of view but inferior from an absolute point of view (e.g., working in a company and earning USD40,000 while others earn USD30,000). If people worry about status, they prefer the option in which they are better off in relative sense over the option in which they benefit in an absolute sense. In other words, when relative outcomes become more important than absolute ones, people display positional concerns.

The "big-fish-little-pond effect" (BFLPE) demonstrates the substantial importance of relative position for people's self-concept. Marsh and Parker (1984) show that students with the same ability evaluate themselves less favorably when they attend higher ability, rather than lower ability, schools. Cross-cultural research also notes that high-performing students at inferior schools display higher academic self-concepts than low-performing students at superior schools across 38 culturally and economically diverse countries (Seaton, Marsh, & Craven, 2009). Moreover, the BFLPE leads to better academic performance. According to Marsh (1987), students in low-ability schools earn better grades than their equally able counterparts in high-ability schools. Alicke, Zell, and Bloom (2010) also demonstrate the importance of reference groups experimentally, by telling students that they were ranked either fifth or sixth out of ten, based on their performance on a task. Some students thus learned that their performance placed them either last in a superior group of five or first in the inferior group of five. Students reported higher self-evaluations if they were best in the inferior group, compared with students who were last in the superior group, even though the latter ranked higher overall. Thus relative positions have strong impacts on both self-evaluations and real-life performance.

Most investigations of the importance of relative position stem from literature pertaining to income and happiness (Ball & Chernova, 2008; Caporale, Georgellis, Tsitsianis, & Yin,

2009; Clark, Frijters, & Shields, 2008; Clark & Oswald, 1996; Duesenberry, 1949; Easterlin, 1995; Ferrer-i-carbonell, 2005; Luttmer, 2005; McBride, 2001; Stutzer & Frey, 2002). For decades, researchers debated whether money could buy happiness. The *absolute* income hypothesis suggests that richer people are happier than poorer people in the same society (Diener, 1984; Veenhoven, 1991), because they can buy goods that increase happiness. Veenhoven (1991) claims that because richer people can more easily meet all their basic needs, such as health, food, safety, and comfortable housing, they are prone to be happier than poorer people. However, beyond a certain level of income, this wealth might not increase happiness further, because their basic needs already have been met (Diener, Sandvik, Seidlitz, & Diener, 1993; Veenhoven, 1991). Average happiness ratings in Western countries have not increased despite substantial growth in national income over the past half-century, for example (Clark et al., 2008; Easterlin, 1974, 1995). Finally, wealthier people within a society are happier (i.e., absolute income effect), but raising everyone's income in a society does not improve people's happiness (Dolan, Peasgood, & White, 2008).

Instead, Easterlin (1974) suggests that people develop a benchmark for income, according to what the people around them possess. They are happier when their income is higher than the standard but less happy when they are worse off than others in society (Diener et al., 1993). Thus, when people achieve a substantial absolute income level, they start to care more about their *relative* income position. Overall, though both absolute and relative income levels matter, the effect of absolute income on happiness appears smaller than we might expect (Aknin, Norton, & Dunn, 2009). Changes in relative income have a much stronger impact on happiness than do changes in absolute income (Ball & Chernova, 2008). In summary, people worry about their relative income position and tend to display positional income concerns.

Such concerns extend beyond income (Pingle & Mitchell, 2002) to include concerns about their relative position in domains such as vacation days and insurance (Alpizar et al., 2005), cars (Carlsson et al., 2007), attractiveness, supervisor's praise (Solnick & Hemenway, 1998), clothing, and home size (Solnick & Hemenway, 2005). However, the degree to which people exhibit positional concerns varies across domains. Literature on positional goods, defined as goods whose value depends on the extent to which other people possess them (Frank, 1985; Hirsh, 1976), also indicates that some goods are more positional than others (Alpizar et al., 2005).

Yet evidence why positional concerns vary across domains remains uncertain. Several researchers (e.g., Alpizar et al., 2005; Carlsson et al., 2007) suggest observability, because the visibility of various domains influences the manner in which people pursue status in their

daily lives. Frijters and Leigh (2008) demonstrate that people divide their time between work and leisure, according to the observability of the outcomes. The authors posit that working can lead to observable levels of consumption, whereas leisure can be conspicuous when it is observable to one's neighbors. Thus, the more time an individual and his or her neighbors live in the same place, the more observable his or her leisure is (Frijters & Leigh, 2008). Analyzing the interstate mobility data from the US, they found that non-immigrants increase their average work week by seven minutes when their leisure activities become less observable to their neighbors, due to a 1 percentage point rise in population turnover (Frijters & Leigh, 2008). As such, they find support for their hypothesis that people optimize between observable leisure and observable consumption. In line with this reasoning, Solnick and Hemenway (2005) demonstrate that public goods are more positional than private goods. However, Hillesheim and Mechtel (2013) argue that the observabilty of a domain has no impact on its degree of positionality; rather, positionality reflects associations with non-psychological, negative externalities. Having a worse education than someone else might induce a psychological cost (e.g., envy), as well as an indirect non-psychological cost if the person anticipates ending up with a worse job and lower absolute income level due to her or his education. Hillesheim and Mechtel (2013) suggest that domains are more positional if they are characterized by such non-psychological negative externalities.

According to a Darwinian perspective, people also should care more about their position in domains that contribute to reproductive success (Frank, 2007, 2011). Thus expenditures on schooling should be highly positional, because people want their offspring to be well prepared to face their competitors in the labor market. Safety and insurance are relatively non-positional goods, in that the benefits of successful risk taking are more positional than are feelings of safety derived from not taking any risk (Frank, 2007). Although this Darwinian argument makes intuitive sense, it has not been empirically tested. In seeking to demonstrate the viability of an alternative explanation, we posit that relative position is more important in domains that require social comparisons to evaluate outcomes.

1.2 Social comparison

Classic social comparison theory states that people feel the urge to evaluate themselves, usually against objective standards (Buunk & Gibbons, 2007; Wood, 1989). When objective information is unavailable though, people compare themselves with similar others to assess

whether their opinions are right and to determine how well they can perform on a given attribute. Festinger's (1954) prediction of a unidirectional drive upward implies that people prefer slightly better-off others as a source of social information, because such upward comparisons motivate them to improve their own status. Several studies (e.g., Brickman & Bulman, 1977; Wills, 1981) also show that people make downward comparisons to gather information about themselves. Three motives underlie the need for such social comparison: self-evaluation, self-improvement, and self-enhancement (Gibbons & Buunk, 1999; Wood, 1989). However, people can engage in social comparison for many, varied reasons (Gilbert, Price, & Allan, 1995). (For overviews of this voluminous literature, see Buunk & Gibbons, 2007; Suls & Wheeler, 2000; Suls & Wills, 1991; Wood, 1989.)

In turn, we argue that people tend not to display positional concerns in domains that do not require social information to evaluate outcomes. When people do not compare their outcomes with those of others, they probably do not worry much about their relative position. In contrast, comparing one's own position against that of others might encourage doing better. We thus investigate whether people have a stronger preference to outperform others in domains that require people to compare their outcomes.

Hsee and Zhang (2010) demonstrate that domains differ in the extent to which social comparison is necessary to evaluate relevant outcomes. For some domains, people have an internal reference system that allows them to assess the desirability of a given value. For example, if people take a sip of coffee, they know immediately whether it is too hot, because they have an innate reference system to evaluate temperature. The need for comparison is low in such domains; people simply rely on their own reference systems to evaluate an outcome. In other important domains though, people lack an internal reference system and must undertake evaluation on the basis of external reference information. A woman who receives a diamond engagement ring has no internal reference for the value of a diamond; to form an idea of the ring's value, she may compare it with rings worn by her friends or advertised by jewelers. The need for comparison thus is high when people need social information to determine the value of an object (Hsee & Zhang, 2010; Hsee, Zheng, & Yang, 2012).

Another influence might be specific to the individual, in that some people are more inclined to make social comparisons than others. Gibbons and Buunk's (1999) scale assesses these individual differences in social comparison orientation (SCO). People who are more likely to compare themselves with others are typically self-conscious, empathic, and somewhat insecure about themselves (Buunk & Gibbons, 2007). Such habitual comparison makers might be more concerned about their relative position. Because comparing oneself

with others also stimulates the desire to compete (Festinger, 1954; Garcia & Tor, 2007, 2009; Hoffman, Festinger, & Lawrence, 1954), social comparison could induce people to work to outperform others, even though a far more rational choice would be to pursue an outcome that would leave them better off in absolute terms.

In support of this idea, Lampi and Nordblom (2010) suggest that comparisons can leave people more concerned about their relative positions. In particular, people who were frequently compared with their siblings during childhood display more positional concerns in terms of earned income and success at work. Feelings of *being* compared thus may have long-lasting effects on positional concerns in general (Lampi & Nordblom, 2010). We argue that *making* comparisons similarly might affect the extent to which people care about their relative position.

2. **CURRENT STUDY**

With this study, we seek to test whether domain differences in positional concerns reflect differences in the need for social comparisons in each domain. In particular, we hypothesize that people exhibit less positional concern in domains for which they are not likely to compare their position against that of others. In contrast, people should display more positional concern in domains that require comparative information to evaluate outcomes. In addition, we seek to shed more light on the process underlying the effects of social comparisons on positional concerns. Engaging in social comparison, whether because of the person's own personality or the domain at hand, likely elicits a competitive mindset and a desire to be better off in relative terms. Therefore, we include three individual difference measures for competitive drive: competition contingent self-worth (i.e., extent to which self-worth depends on competitive outcomes; Crocker, Luhtanen, Cooper, & Bouvrette, 2003), need for power (i.e., pleasure derived from having power over others; Jackson, 1984), and competitiveness (i.e., enjoyment of competition with others, with the ultimate goal of winning; Cassidy & Lynn, 1989). Individual differences in both social comparison orientation and competitive drive should predict individual differences in positional concerns. However, we also consider whether competition mediates the effect of social comparison orientation on positional concerns. We therefore test several models to tease out the exact roles of social comparison and competitive drive.

Overall, we aim to unravel the origin of both individual and domain differences in positional concerns. To summarize our reasoning, the following equation clarifies how positional concerns affect the utility of outcomes:

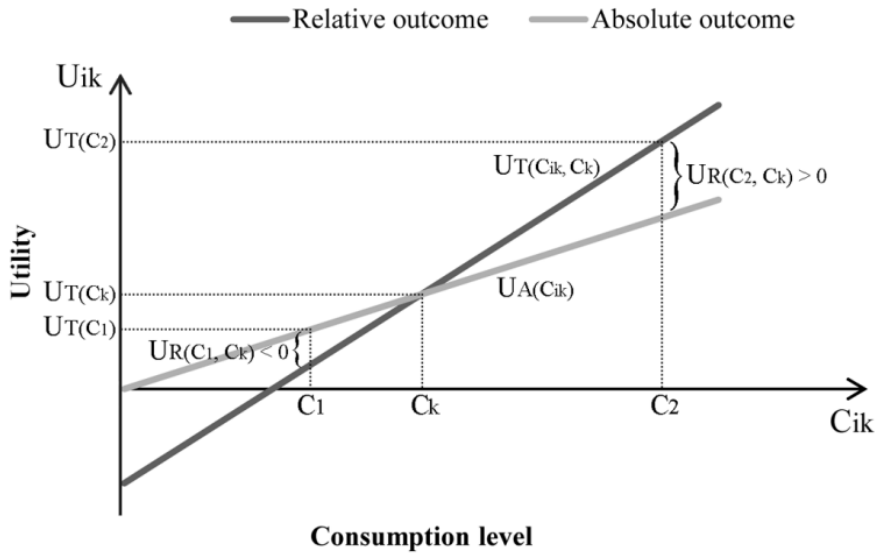
$$U_{ik} = U_T(C_{ik}, C_k) + \varepsilon_{ik} = U_A(C_{ik}) + U_R(C_{ik}, C_k) + \varepsilon_{ik} = U_A(C_{ik}) + f(W_k, A_i)*g(C_{ik}, C_k) + \varepsilon_{ik}, \quad (1)$$

where the utility of individual *i* in domain *k*, denoted by $U_{ik,}$ equals the total utility U_T of the outcome C_{ik} of individual *i* in domain *k,* given the average outcome C_k in domain *k* across all individuals. The total utility U_T consists of U_A, or the utility of the *absolute* outcome of *i* in domain *k,* and U_R, or the utility of the *relative* outcome of *i* in domain *k*. The utility U_A depends merely on the outcome of individual *i* in domain *k*. In contrast, the utility U_R represents the utility of the relative outcome of *i* in domain *k*. This relative utility is decomposed in two aspects. Function g(.) represents the distance between one's outcome C_{ik} and the average outcome C_k. This distance is positive when $C_{ik} > C_k$ and negative when $C_{ik} < C_k$. Doing better than average thus increases the total utility associated with a specific outcome ($U_A(.) > 0$) while doing worse than average decreases it ($U_A(.) < 0$). The second aspect, f(.), represents the impact of domain and individual differences on positional concerns and enters the equation as a weight factor, such that as f(.) increases, relative outcomes become more important in the overall utility U_{ik}. In other words, the utility of doing better than average and the disutility of doing worse than average become larger as f(.) increases. We propose that the weight f(.) increases with increasing levels of A_i, which indicates the social comparison orientation of individual *i*, and with increasing levels of W_k, which is the level of need for comparison in domain *k*. Finally, the error term ε_{ik} captures both random and systematic deviations from the model, due to a domain's level of visibility for example.

Figure 1 illustrates our framework. When people do not compare their outcomes with those of others in society, total utility U_T equals utility U_A, or the absolute outcome of *i* in domain *k*. The slopes of $U_T(C_{ik}, C_k)$ and $U_A(C_{ik})$ thus would be equal, because the utility associated with relative outcome is 0. However, when people compare their outcomes, total utility is affected by relative utility U_R. If a person achieved an outcome level C_1, smaller than the average outcome C_k, her or his utility thus would decrease, due to the negative comparisons experienced with others. In contrast, if individual *i* has a higher outcome level C_2 compared with others', the relative utility is positive, because *i* is better off than others. The impact of this relative utility U_R on total utility U_T grows stronger with the increasing social comparison orientation of individual *i*, as well as increasing levels of the need for comparison

in domain *k*. Thus, the stronger this impact of the relative utility U_R, the steeper the slope of the total utility U_T for individual *i* in domain *k*.

Figure 1. Utility of the consumption level for individual *i* in domain *k*



3. METHOD

In an online survey, 542 U.S. citizens participated in return for a small fee. They were recruited from an online panel of Global Market Insite, Inc., a market research service firm that maintains a representative panel of more than 1 million U.S. citizens. The sample was equally divided into men and women, with an average age of 41.94 years (*SD* = 11.42), ranging from 19 to 65 years. All the respondents were fully employed, and their ethnic distribution was 82.7% white, 6.5% Asian, 5% Latino, 3.7% African American, and 2.2% other. They completed the Positional Concern Questionnaire (PCQ; Solnick & Hemenway, 1998), in which they indicated whether they preferred an outcome that was superior in a relative sense (e.g., 2 weeks of vacation while others had 1 week) or in an absolute sense (e.g., 4 weeks of vacation while others had 8 weeks), across multiple domains. We used items pertaining to education, attractiveness, income, and vacation time, as featured in the original PCQ, then added items about intelligence, movie attendance, leisure, working hours, home size, savings, friends, neighborhood safety, commute time, and hours of sleep (see Appendix A). The more people are concerned about their status, the more they should prefer the option

in which they are better off in a relative sense over the option in which they are better off in an absolute sense.

Each of the 14 domains in the PCQ varies in the extent to which people must engage in social comparisons to value an outcome. Hsee et al. (2012) propose a simple method to identify whether a given domain requires social comparisons to evaluate a given outcome. To demonstrate this procedure, imagine that we want to measure the extent to which people need social comparisons to evaluate their physical attractiveness. In two versions of the original survey, comparative and simulated non-comparative (Hsee et al., 2012), items first ask respondents how attractive they are. Then in the comparative version, the survey asks how happy they are with their attractiveness level, given the average attractiveness level in society. In the simulated non-comparative version, it asks how happy they would be with their attractiveness level if everyone in society had the same attractiveness level as they had right now (Hsee et al., 2012). However, this method implies that people evaluate their outcomes in relative versus absolute terms, because they evaluate a situation in which they have more or less than others, versus just as much. As a result, the method developed by Hsee et al. (2012) confounds domain need for comparison with positional concerns.

To eliminate this confound, we used an actual, rather than simulated, non-comparative version. Respondents were assigned randomly to either a comparative condition or an actual non-comparative condition. As in the original version, each condition contained only two questions for each domain. If the target domain were number of friends, respondents had to indicate how many close friends they had. Then in the comparative version, respondents subsequently indicated how happy they were with that number of friends on a seven-point scale (1 = "very unhappy," 7 = "very happy"), given that the average number of close friends is four.[2] In the non-comparative version, we asked them how happy they were with their number of friends (same seven-point scale), without any other information. As such, respondents did not have to engage in comparison at all to evaluate their own outcome in the non-comparative condition. Next, we ran two regressions: of the happiness ratings from the comparative condition on the target variable X (e.g., number of friends) and of the happiness ratings from the non-comparative condition on the target variable X. To calculate the evaluability coefficient, we used the quotient of the estimated regression coefficients, $\beta_{non\text{-}comparative}/\beta_{comparative}$, which reflected the size of the non-comparative effect relative to the total

[2] To assess the average outcome in each domain, we ran an online survey in which 138 U.S. citizens (56 men, 82 women; 22–68 years, *M* = 43.64 years, *SD* = 12.00) indicated their outcomes in each of the 14 domains, in return for a participation fee.

effect (see Appendix B). The higher (lower) the evaluability coefficient, the lower (higher) the need for comparison in that domain (cf. Hsee et al., 2012). Thus, our evaluability coefficient represented the extent to which the need for comparison in a domain *k* affected the relative utility U_R for individual *i* in that domain (see Figure 1).

To measure individual differences in social comparison orientation (SCO), we administered the social comparison scale developed by Gibbons and Buunk (1999) on a seven-point scale (1 = "strongly disagree," 7 = "strongly agree"). The scale contained 11 items (e.g., "I always like to know what others in a similar situation would do") and had an internal consistency of .91. We also measured three individual difference variables on seven-point scales (1 = "strongly disagree," 7 = "strongly agree") to assess participants' competitive drive. First, we used the competition subscale from the contingent self-worth scale (Crocker et al., 2003) to measure the extent to which competition affects self-esteem. This scale contained five items (e.g., "I feel worthwhile when I perform better than others on a task or skill") and achieved an internal consistency of .91. Second, we administered 16 need for power items (e.g., "I feel confident when directing the activities of other") from the Personality Research Form E (Jackson, 1984) to assess the extent to which the person likes to have power over others. Its internal consistency was .77. Third, we assessed the competitiveness subscale of the achievement motivation scale developed by Cassidy and Lynn (1989), which contained seven items (e.g., "I try harder when I am in competition with others") and had an internal consistency of .83 (see Appendix C for all scale measures).

4. RESULTS AND DISCUSSION

Overall, 30.4% of respondents preferred to be better off in relative sense. Some respondents never exhibited positional concerns, while others always preferred to be better off from a relative point of view. As Table 1 demonstrates, individual differences in SCO (Gibbons & Buunk, 1999) relate positively to the number of times respondents selected the positional option. The more people habitually engage in social comparison, the stronger their concern about their relative position. Thus, people who like to compare their situation against others' have a stronger desire to be better off than others, even if it reduces their absolute level of well-being.

The positional choices also related positively to two of the three measures of competitive drive (see Table 1). People whose self-esteem depends on how they perform in competition

(Crocker et al., 2003) and those eager to compete with others to win (Cassidy & Lynn, 1989) are more likely to exhibit positional concerns. However, the extent to which people indicate that they derive pleasure from having power over others (Jackson, 1984) did not relate to positional choices. People with a high need for power thus were not more inclined to be concerned about their relative position than people with a low need for power.

The construct of need for power might reflect people's competitive drives to a lesser extent than both other constructs, because it focuses on pleasure derived from power, rather than enjoyment of competition in itself. Therefore, we decided to measure individual differences in competitive drive as a composite measure of the competition-contingent self-worth construct (Crocker et al., 2003) and the competitiveness construct (Cassidy & Lynn, 1989). To arrive at this measure, we conducted a principal components analysis on both constructs; one component explained 84.64% of the variance. We used the component score as a measure of dispositional differences in people's competitive drive.

Table 1. Correlations of positional choices, social comparison, and competitive drive

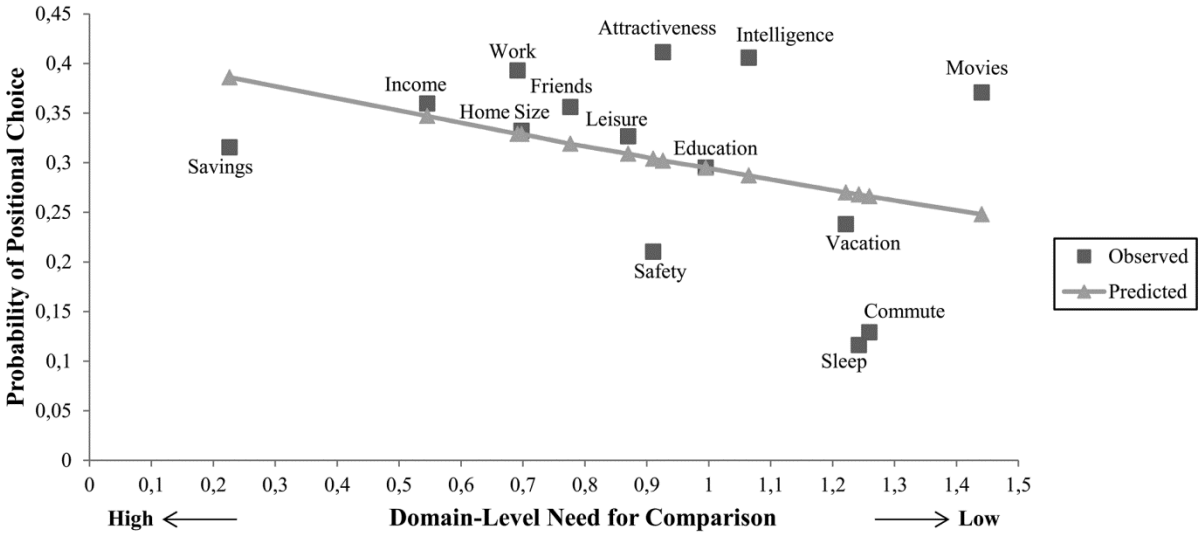
	Positional Choices	**Social Comparison Orientation**	**Competition Contingent Self-Worth**	**Need for Power**	**Competitiveness**
Positional Choices	.77				
Social Comparison Orientation	.16 (<.001)	.91			
Competition Contingent Self-Worth	.23 (<.001)	.59 (<.001)	.91		
Need for Power	.07 (.12)	.13 (.002)	.26 (<.001)	.77	
Competitiveness	.24 (<.001)	.54 (<.001)	.69 (<.001)	.37 (<.001)	.83

Notes: Pearson correlations are displayed with *p*-values in brackets. Cronbach's α values are on the diagonal.

In addition to individual differences in positional concerns, we investigate why positional concerns are stronger for some domains than for others. As mentioned, 30.4% of the respondents preferred to be better off from a relative point of view. To test whether domain differences can predict these preferences, we ran a multilevel logistic regression with choice

of the relative option as a binary dependent variable. Therefore, we used the generalized estimating equations (GEE) analysis with an independent structure of the working correlation matrix, as suggested by the quasi-likelihood under independence model criterion (Pan, 2001). The results revealed that people were more likely to choose the relative option in domains with a high need for comparison. The inverse relationship between the relative choices and the level of need for comparison was clearly significant (Table 2, model 1). The more the domain required social comparison, the more people preferred to be better off in a relative sense (Figure 2). Being better than others is more important in domains in which people must engage in comparisons to assess the value of an outcome.

Figure 2. Observed and predicted probabilities of the positional choices based on domain-level need for comparison



To understand the role of SCO and competitive drive in the elicitation of positional concerns, we ran three additional regression models (Table 2). Model 2 investigated how individual differences in SCO and domain-level need for comparison jointly affected preferences for a relative superior outcome. We initially included the interaction between SCO and need for comparison but found that this interaction was not significant (B = -.071, *SE* = .059, Wald χ^2 = 1.43, p = .23). Therefore, we reestimated the model without the interaction (see Table 2), which revealed that need for comparison still predicted the choice of the absolute versus relative option, after controlling for individual differences in SCO. The main effect of SCO indicated that on average, people who were more likely to make social comparisons preferred a relative superior (i.e., positional) outcome over an absolute one.

Thus, both individual differences and domain differences in social comparison independently determined the extent to which people display positional concerns.

Regarding the effect of competitive drive, we ran a third regression model that included the individual difference variable competitive drive, domain-level need for comparison, and their interaction. This interaction was not significant either (B = -.075, *SE* = .075, Wald χ^2 = 1.02, *p* = .31), so we reestimated the model with main effects only (Table 2, model 3). As expected, the results indicated main effects of both need for comparison and competitive drive. The main effect of need for comparison indicated that in domains that require social comparisons, such as savings and working hours, people likely choose the relative outcome. According to the main effect of competitive drive, people who are highly competitive prefer the option in which they are better off than others, compared with people who are not driven by competition.

Table 2. Multiple regression models to predict positional concern

Model	Independent Variables	B	SE	Wald χ^2	p
1	Domain-level need for comparison	-.531	.068	60.39	<.001
2	Domain-level need for comparison	-.534	.069	60.32	<.001
	Social comparison orientation	.131	.042	9.82	.002
3	Domain-level need for comparison	-.539	.070	60.20	<.001
	Competitive drive	.272	.050	30.79	<.001
4	Domain-level need for comparison	-.539	.070	60.20	<.001
	Social comparison orientation	-.016	.051	.010	0.76
	Competitive drive	.283	.060	22.34	<.001

Notes: We ran GEE analyses with an independent correlation matrix to predict the choice between a relative or absolute superior outcome in every domain. Each model is estimated with the independent variables displayed in column 2; the models included only main effects.

Finally, model 4 includes both SCO and competitive drive as individual difference variables in the regression model, along with domain-level need for comparison. In line with our expectations, SCO no longer predicted positional choices when we controlled for a competitive mindset. To infer mediation, we relied on Baron and Kenny's (1986) approach; no statistical mediation test was available for our multilevel logistic regression model. Considering (1) that SCO predicts positional choices and (2) is correlated with competitive drive, (3) which also predicts positional choices, and (4) that the effect of SCO on positional choices disappeared when we controlled for competitive drive, we can conclude that

competitive drive mediates the effect of SCO on the inclination to be better off in relative terms. Therefore, the results suggest that social comparison triggers a competitive mindset, inducing people to want more than others in society, even though otherwise they could have been better off in absolute terms.

Thus, people are more likely to display positional concerns in domains that require comparative information to evaluate their outcomes. In domains such as savings, income, and working hours, people need social information to know what constitutes a normal or adequate value. In turn, they seem more concerned about their status and exhibit stronger desires to be better off than others in these domains. In contrast, for domains in which people do not need social information to evaluate an outcome, such as amount of sleep at night or commute time, they are less likely to display positional concerns. Our results even demonstrate that social comparison triggers a competitive mindset, making people want to be better off than others. That is, it is not the social comparison process in itself but the resulting motivation to compete that ultimately underlies the effect of the domain-level need for comparison on positional concerns. In summary, social comparison induces a competitive mindset, causing people to choose less over more (in an absolute sense).

5. GENERAL DISCUSSION

Several studies have shown that the extent to which people are concerned about their position varies across domains (Alpizar et al., 2005; Carlsson et al., 2007; Frank, 2007; Hillesheim & Mechtel, 2013; Solnick & Hemenway, 1998, 2005). Domains such as income and personal attractiveness traditionally have been viewed as positional domains, in which people have a stronger preference to be better off than others. Yet not everyone exhibits positional concerns to the same extent; some people seem more concerned about their status than others (Solnick & Hemenway, 1998). Thus far, we have lacked a consensus view of why these observed domain and individual differences in positional concerns occur. With this article, we have sought to contribute to this discussion by proposing that both domain and dispositional differences may reflect social comparison effects.

Our survey data confirm that domain differences in the need for comparison can explain differences in positional concerns across domains. When people do not have to search for social information to evaluate their outcomes, they are unlikely to be concerned about their relative position. In contrast, in domains in which people must engage in social comparison,

they have a stronger preference to be better off than others in society. Making these social comparisons not only directly elicits positional concerns but also triggers a competitive mindset, making people want to be better off in relative terms.

Although our survey data confirm this reasoning, we do not want to claim that the need for comparison can explain domain differences completely. Rather, we consider these domain-level differences as one possible determinant of differences in positional concern. As depicted in Figure 2, the estimated probabilities of positional concerns deviate from the observed probabilities; attractiveness and intelligence are the most positional domains, yet the need for comparison actually is rather average in these domains. Moreover, the predicted probability is higher than the observed probability in domains such as commuting time and amount of sleep. In general, people care more about their relative position in domains with a high need for comparison, such as income, working hours, and home size, compared with domains with a low need for comparison, such as sleep, commute time, and vacation. These results indicate that the level of need for comparison in a domain explains at least part of its positionality.

A pertinent issue with domain-level need for comparison is the potential for variation across samples. Reference values for some domains, such as home size or neighborhood safety, vary tremendously over space and time. We used similar samples to develop the measure of need for comparison and to complete this measure to enable us to predict positional choices. Reference shifts thus are unlikely and should not interfere with our analysis. Although in another time or place, the values of home sizes might differ, it would entail a mean shift and not necessarily changes in response to the deviation from that mean. That is, even if the reference shifts, positional concerns should not change accordingly. Further research is needed to examine whether domain-level need for evaluation varies across countries and, if so, whether positional choices vary accordingly.

While we did use a similar sample to develop the measure of domain need for comparison, the average value may not have been a good reference point for everyone in our sample. For instance, 7 hours of sleep at night might seem a lot for one person, while it may seem too little for someone else. However, in line with our previous reasoning, we posit that if some people would indeed use a different reference point, and for instance, a billionaire compares his assets with other billionaires, this would simply result in a mean shift. Again, we argue that the positional concerns should thus not change accordingly.

Another limitation of domain-level need for comparison is that our measure may be affected by differences in a priori knowledge about the consumption level of others. To measure domain-level need for comparison, we asked participants in the non-comparison

condition how happy they are with their consumption level in a given domain without any other information. However, providing no information about the average consumption level of a given variable does not imply that people do not have any information about the consumption level of others. So, even in the non-comparative condition, people may have engaged in comparisons. As a result, non-evaluable domains may look more evaluable than they really are. In fact, this may explain why income and savings are not equally inevaluable domains. Possibly, people may have more background knowledge of other people's income than about other people's savings. This may have inflated the domain-level of need for comparison for income relative to that for savings. Moreover, it is possible that also individual differences in social comparison may have affected our measure of domain-level of need for comparison. That is, people who highly engage in social comparison may have more knowledge about the average consumption level than people who are not likely to engage in comparison. Future research should be conducted to investigate whether social comparisons indeed result in a heightened knowledge about others' consumption levels. Nevertheless, despite the possibility that our measure may be less reliable for some domains and for some people, we still find a strong relation between domain-level need for comparison and positional choices. Thus, while the measure of domain-level need for comparison may not be perfect, its limitations do not invalidate the main message of our research.

However, the strength of this relationship between domain-level need for comparison and positional choices may be, to some extent, inflated by the relatedness of both measures. While both constructs are conceptually distinct, both their measures use a comparative framework. Domain-level need for comparison assesses to what extent people need social information to know what a normal value is in a given domain. To measure this need for comparison in a given domain, people evaluate their outcome either in relative terms or without any comparison information. Positional concern, on the other hand, is the extent to which people are concerned about their position in society or within a reference group. While people can be concerned about their status without engaging in social comparisons, the PCQ asks people to choose between two situations in which they are either better off in relative terms or in absolute terms. We did, however, tried to eliminate this confound by restricting the use of a comparative framework to assess domain-level need for comparisons. In particular, we replaced the simulated non-comparative condition with an actual non-comparative condition, in which we did not ask participants explicitly to engage in comparisons.

This research contributes to an understanding of domain and dispositional differences in positional concerns, as well as to literature on social comparison. Previous research has

indicated that social comparison increases performance in real-life settings (Blanton, Buunk, Gibbons, & Kuyper, 1999), but it was unclear whether social comparison induces people to do better than *they did before* (i.e., improve their own performance) or better *than others* (i.e., outperform others). First, social comparison often serves self-evaluation goals (Buunk & Gibbons, 2007; Festinger, 1954; Wood, 1989), rather than necessarily entailing competition. Second, though competitiveness is commonly perceived as a consequence of social comparison (Festinger, 1954; Garcia & Tor, 2007, 2009; Hoffman et al., 1954), the order of causality is not clear; it may be that competitive people are more likely to engage in social comparison than non-competitive people. Third, in any given study, the same course of effective action would allow the respondent to do better than *before* and better than *others*, such that it is impossible to study differential preferences for these outcomes. To tackle this issue, we used a paradigm that unequivocally dissociates relative from absolute superior outcomes. In so doing, this article contributes to extant literature on social comparison by demonstrating that social comparison induces a competitive mindset, such that people consider better in a relative sense, even if they can otherwise do better in an absolute sense.

Our findings help explain the origin of positional concerns; they also raise several questions. We indicate that social comparison activates a competitive mindset and heightens the importance of people's relative position. Our results confirm this idea; however, it is unclear how engaging in social comparison might trigger a competitive drive that makes people want to be better off in relative rather than absolute terms. The impact of social comparison on positional choices may be explained further by the variety of anticipated feelings that stem from social comparisons. For example, previous research shows that social comparisons in either direction can elicit positive and negative feelings about the self (Buunk, Collins, Taylor, VanYperen, & Dakof, 1990). Upward comparisons can motivate people to improve but also cause them to feel threatened by comparisons with superiors (Buunk & Gibbons, 2007). Downward comparisons can induce feelings of superiority over others but also create the worry that they could end up in the same inferior situation (Lockwood, 2002). It would be interesting to distinguish positive and negative emotions as triggers of positional choices.

If people prefer the relatively superior outcome and seem to express a preference to be better off than others, it may be that they display positional concerns because they do not want to be worse off than others. That is, preferences for the relatively superior outcome could be driven by either pleasant feelings of pride that arise from outperforming other people (cf. Tesser & Collins, 1988; Webster, Duvall, Gaines, & Smith, 2003) or the desire to avoid

unpleasant feelings of envy that might arise from falling behind (Salovey & Rodin, 1984; Smith & Kim, 2007). Making social comparisons may instigate other feelings as well, such as feeling ashamed when being worse than others, or even feeling embarrassed when performing way better than others. Either way, people with a natural tendency to engage in social comparison likely experience these emotions more frequently or more intensely, which might explain their inclination to pursue a position that is better off in relative terms.

The actual or anticipated emotions that result from social comparisons also may differ in intensity, according to the target of comparison. First, people might compare themselves with either an overall population or concrete others. According to local dominance theory, people prefer comparisons with a few, discrete individuals (i.e., local comparison) over those with larger aggregates (i.e., global comparison) for their self-evaluations (Zell & Alicke, 2010). In addition, people prefer concrete information over abstract information to make decisions (Borgida & Nisbett, 1977). People with a low need for social comparison might use objective standards, such as the mean of a population, as a reference point, whereas people with a high need for comparison might think about peers when they make a comparative assessment. Being in a better position than others thus could induce more intense positive feelings when people use peers as a reference point instead of an abstract mean score. In support of this idea, research has shown that people experience greater arousal when they are outperformed by a close other, rather than a distant other (Tesser, Millar, & Moore, 1988). Because outperforming a specific peer thus might induce better feelings than beating an average score, people who like to compare themselves with others might be more competitive and prefer a relative over an absolute outcome. Additional research should investigate which point of reference people use when making comparative assessments and how it affects their choices.

In addition, domains with a high need for comparison may be associated with stronger affective reactions. Several researchers have suggested that the observability of outcomes in a given domain explains that domain's positionality. Frank (2007) even argues that relative position is unimportant without visibility, and Heffetz and Frank (2011) state that status can be obtained only through actions that are either socially visible or result in socially visible outcomes. We concur that the feelings that stem from social comparisons might be stronger in domains that are visible, such that visibility would strengthen the effect of social comparison. However, visibility alone cannot explain why some domains are more positional than others. In our study, physical attractiveness emerged as the most positional domain, despite its average level of need for comparison. Perhaps respondents experience stronger anticipated emotions associated with comparing their attractiveness level with those of others, because

this domain is highly observable. In contrast, the amount of sleep people get at night is the least positional domain, perhaps because they experience less intense negative feelings when comparing their amount of sleep against that of others, due to its lack of visibility. We thus predict that people have a stronger preference for a relatively superior outcome because the feelings ensuing from social comparison are stronger in domains that are socially visible. Future research should be conducted to investigate whether the visibility of a domain could indeed strengthen the effect of social comparison on positional concern.

The preference to be better off than others thus appears due to strong affective reactions that ensue from engaging in social comparison. Whether these emotions are the consequence of status concerns, a social comparison orientation, a competitive mindset, visible domains, different points of reference, or other reasons remains a topic for further investigation. For now, we note that both domain and dispositional differences in positional concerns ultimately appear rooted in social comparisons that trigger competitive mindsets. If a person routinely compares her or his outcomes with those of others or is forced to do so because the outcomes in a given domain are difficult to evaluate, the competitive choice is a preference to be better off in relative sense. In some domains and for some people, less really can mean more.

7. APPENDICES

Appendix A

Positional Concern Questionnaire (Solnick & Hemenway, 1998) with additional domains

1. Note that prices are what they are currently and prices (the purchasing power of money) are the same in States A and B.
   A: Your current yearly income is $50,000; others earn $25,000.
   B: Your current yearly income is $100,000; others earn $200,000.
2. A: You have 12 years of education (high school); others have 8.
   B: You have 16 years of education (college); others have 20 (graduate degree).
3. A: You have 2 weeks of vacation; others have 1 week.
   B: You have 4 weeks of vacation; others have 8 weeks.
4. Assume physical attractiveness can be measured on a scale from 1 (lowest) to 10 (highest).
   A: Your physical attractiveness is 6; others average 4.
   B: Your physical attractiveness is 8; others average 10.
5. Assume intelligence can be measured on an SAT test.
   A: Your SAT score is 1000; others average 800.
   B: Your SAT score is 1200; others average 1400.
6. Note that prices are what they are currently and prices (the purchasing power of money) are the same in States A and B.
   A: You put $500 aside each month; others average $250.
   B: You put $1,000 aside each month; others average $2,000.
7. A: You have 4 good friends; others have 2 good friends.
   B: You have 6 good friends; others have 10 good friends.
8. A: Your home is 2,000 square foot; others have a home of 1,000 square foot.
   B: Your home is 3,000 square foot; others have a home of 4,000 square foot.
9. Assume that crime rate is the percent chance of being a victim of a serious crime.
   A: Your neighborhood has a crime rate of 20%; others average 30%.
   B: Your neighborhood has a crime rate of 10%; others average 5%.
10. A: You have 30 hours of free time; others have 20 hours of free time.
    B: You have 40 hours of free time; others have 60 hours of free time.
11. A: You have to work 8 hours a day; others average 9 hours.

B: You have to work 7 hours a day; others average 6 hours.

12. A: You go to the movies 5 times a year; others go 2 times.

    B: You go to the movies 8 times a year; others go 15 times.

13. A: You spend 45 minutes on the commute; others 55 minutes.

    B: You spend 20 minutes on the commute; others 10 minutes.

14. A: You sleep 5 hours a night; others sleep 4 hours.

    B: You sleep 6 hours a night; others sleep 8 hours.

Appendix B

Domain	Measurement	$\beta_{comparative}$	$\beta_{non\text{-}comparative}$	Evaluability Coefficient
Savings	USD/month	0.325	0.074	0.226
Income	USD/year	0.393	0.214	0.545
Work	Hours/day	-0.360	-0.249	0.691
Home size	Square feet	0.369	0.258	0.698
Friends	Number of close friends	0.295	0.229	0.776
Leisure	Hours/week	0.457	0.398	0.870
Safety	Probability of being victim of violent crime	-0.502	-0.456	0.910
Attractiveness	Score on 10	0.648	0.600	0.926
Education	8 categories of educational attainment	0.461	0.459	0.995
Intelligence	SAT scores	0.445	0.474	1.064
Vacation	Days/year	0.407	0.497	1.221
Sleep	Hours/night	0.447	0.555	1.242
Commute	Minutes/day	-0.503	-0.634	1.259
Movies	Attendance/year	0.195	0.282	1.441

Note. The parameters for intelligence are measured as the mean scores of two SAT scores, one prior to and one after the writing test had been added.

Appendix C

Social comparison orientation scale (Gibbons & Buunk, 1999)

1. I often compare how my loved ones (boy- or girlfriend, family members, etc.) are doing with how others are doing.
2. I always pay a lot of attention to how I do things compared with how others do things.
3. If I want to find out how well I have done something, I compare what I have done with how others have done.
4. I often compare how I am doing socially (e.g., socials skills, popularity) with other people.
5. I am not the type of person who compares often with others.*
6. I often compare myself with others with respect to what I have accomplished in life.
7. I often like to talk with others about mutual opinions and experiences.
8. I often try to find out what others think who face similar problems as I face.
9. I always like to know what others in a similar situation would do.
10. If I want to learn more about something, I try to find out what others think about it.
11. I never consider my situation in life relative to that of other people.*

* Reversed items

Competition subscale of the contingencies of self-worth scale (Crocker et al., 2003)

1. I feel worthwhile when I perform better than others on a task or skill.
2. Knowing that I am better than others on a task raises my self-esteem.
3. Doing better than others gives me a sense of self-respect.
4. My self-worth is affected by how well I do when I am competing with others.
5. My self-worth is influenced by how well I do on competitive tasks.

Competitiveness subscale of the achievement motivation scale (Cassidy & Lynn, 1989)

1. I try harder when I'm in competition with other people.
2. It annoys me when other people perform better than I do.
3. I judge my performance on whether I do better than others rather than on just getting a good result.
4. If I get a good result, it doesn't matter if others do better.*
5. I would never allow others to get the credit for what I have done.

6. To be a real success I feel I have to do better than everyone I come up against.
7. It is important to me to perform better than others on a task.

* Reversed item

Need for power items from the Personality Research Form E (Jackson, 1984)

1. When I am irritated, I let it be known.[a]
2. Stupidity makes me angry.[a]
3. Sometimes I feel like smashing things.[a]
4. I seldom feel like hitting anyone.*[a]
5. I rarely get angry either at myself or at other people.*[a]
6. I would never start a fight with someone.*[a]
7. I avoid criticizing others under any circumstances.*[a]
8. I rarely swear.*[a]
9. I feel confident when directing the activities of other.[b]
10. In an argument, I can usually win others over to my side.[b]
11. The ability to be a leader is very important to me.[b]
12. I would like to be an executive with power over others.[b]
13. I avoid positions of power over other people.*[b]
14. I don't like to have the responsibility for directing the work of others.*[b]
15. I have little interest in leading others.*[b]
16. I feel uneasy when I have to tell people what to do.*[b]

* Reversed items.

[a]Aggression subscale.

[b]Dominance subscale.

CHAPTER

3

TO LIKE OR NOT TO LIKE: INDIVIDUAL DIFFERENCES IN EVALUATION DIFFICULTY

CHAPTER III: TO LIKE OR NOT TO LIKE? INDIVIDUAL DIFFERENCES IN EVALUATION DIFFICULTY

People constantly make evaluations. Whether they meet someone new, eat something different, or watch the latest movie in theater, they constantly consider how much they liked the experience. Consumers in particular often must decide which product alternative they prefer. Social psychology and marketing research offer insights into how evaluative judgments or attitudes form (Chaiken, 1980; Eagly & Chaiken, 1993; Hastie & Park, 1986; Maio & Haddock, 2009; Petty & Cacioppo, 1986). Most theories of attitude formation focus on the processes by which attitudes form and their situational determinants; this article attends to the difficulties people experience when forming attitudes, as well as the ways in which people differ in the extent to which they experience those difficulties. In particular, uncertainty about whether one likes or dislikes something can hinder attitude formation and affect a wide range of consumer behaviors.

This article introduces and validates an evaluation difficulty scale that measures individual differences in people's tendency to experience difficulties in making evaluations. For the development and validation of the evaluation difficulty scale, we began by testing the reliability of this scale, and then its nomological validity, by assessing how evaluation difficulty relates to other personality measures, as predicted by psychology and marketing literature. We assessed 10 potentially related dispositions, including need for cognition (Cacioppo & Petty, 1982), faith in intuition (Epstein, Pacini, Denes-Raj, & Heier, 1996), need to evaluate (Jarvis & Petty, 1996), and maximizing behavior (Schwartz et al., 2002), as well as the decision difficulty subscale of the maximization inventory (Turner, Rim, Betz, & Nygren, 2012), which we expect to demonstrate the strongest relation to our evaluation difficulty scale. That is, people who experience difficulties evaluating might in turn experience difficulties with decisions. Finally, we investigate whether our evaluation difficulty scale can predict consumer behavior. In particular, we test whether evaluation difficulty moderates the negative effects of choice overload. Moreover, we explore whether evaluation difficulty leads to the use of simple heuristics in decision making. In doing so, we investigate whether evaluation difficulty can predict actual consumer behavior.

1. THEORETICAL BACKGROUND

According to most content-based theories, people base their judgments on available information and whatever happens to come to mind (Higgins, 1996). When they evaluate a product and find that positive attributes come to mind, they make positive product evaluations. However, the way people process such information also affects their ensuing evaluations. Previous research has demonstrated that the more fluently people process information, the better their evaluation usually is. For example, Lee and Labroo (2004) demonstrate that people like an image of ketchup better when it is preceded by an advertisement for mayonnaise, because the constructs relate strongly (conceptual fluency). According to the mere exposure effect, people prefer neutral stimuli when they process them more frequently, which increases fluency (perceptual fluency; Bornstein, 1989; Zajonc, 1968). Reber, Winkielman, and Schwarz (1998) confirm that processing fluency enhances liking and is affective, such that people misattribute positive feelings, related to processing ease, to the topic of their evaluation. The way consumers feel at the moment of evaluation also affects their evaluations, because they use their mood and apparent emotions as information to form evaluations (Schwarz & Clore, 1996). Thus, people use not only declarative information to make evaluations but also experiential information, such as processing fluency and their emotional state, to form judgments and evaluations (Schwarz, 2004).

Moreover, whereas some evaluations are very easy to make, others require more effort to overcome. According to Hsee and Zhang's (2010) general evaluability theory, people can engage in both single and joint evaluation (see also Hsee & Zhang, 2004; Hsee, 1996). When people engage in a single evaluation, they have to make an evaluation in an isolated modus, without direct comparisons. These single evaluations are easy if people have internal reference systems to evaluate a given value. However, without an internal reference system to make evaluations, these assessments become more difficult, because people must search for social comparison information or retrieve previously gathered knowledge to assess the value of a given variable.

In many situations, people engage in joint evaluations, such that they can compare different options. Joint evaluation is typically easier than single evaluation, because one value serves as a reference to evaluate another (Hsee & Zhang, 2010). For example, when people compare two product alternatives, and one product scores better on a given attribute, they can more easily determine which is the superior product. According to the structural alignment

model of similarity, people tend to focus on product differences that are directly comparable or alignable, whereas they ignore nonalignable differences for which attributes of one product have no corresponding values with another (Zhang & Markman, 2001). However, when products differ merely on nonalignable attributes, people might encounter difficulties with evaluation. Additionally, when products are very similar, or when there are too many product alternatives to process, people also might experience difficulties when trying to form an evaluative judgment. Although some evaluations are no trouble at all, others require active engagement in evaluative judgment. Thus, depending on the situation, people encounter more or less difficulties in making accurate evaluations.

Beyond the situation, we propose that people differ in the extent to which they encounter difficulties with evaluation in general. When people actively engage in evaluative judgment making, they may have to compare available information, search for comparison information, or retrieve old information to count on previously gathered knowledge. However, the act of processing information may be easier for some people than for others. For example, people with a high need for cognition should tend to be good information processors, because they like to engage in effortful cognitive activities (Cacioppo & Petty, 1982). Evaluations similarly require people to assess how they feel about given attributes or at the time of evaluation, and various people are better or worse at assessing their own feelings. Perhaps people with more faith in intuition are good evaluators, because they trust their hunches (Epstein et al., 1996). Overall then, we suggest that people experience more or less difficulty when they engage in evaluative judgment making. In turn, people also may lack confidence in their own evaluation skills. In sum, irrespective of the situation, some people are more likely to encounter difficulties making evaluative judgments in general; they could find it difficult to evaluate a new product, taste, or neighbor, for example.

This personality difference, related to the experience of evaluation difficulty, could affect a wide range of consumer behaviors. When people experience difficulties evaluating, they also may encounter trouble making purchase decisions. Previous research demonstrates that people experience negative effects of too many choice options (Botti & Hsee, 2010; Botti & Iyengar, 2004; Dhar, 1997; Iyengar & Lepper, 2000; Scheibehenne, Greifeneder, & Todd, 2009, 2010), though in their meta-analysistical review, Scheibehenne et al. (2010) find no empirical evidence of this choice overload effect. In addition, the potential moderators of this effect remain unclear. Schwartz et al. (2002) demonstrate that maximizing behavior could explain why some people experience more negative effects from choice overload than others, but this finding was not replicated (Scheibehenne et al., 2009, 2010). Individual differences in

evaluation difficulty might as well moderate this choice effect: If people find it hard to evaluate in general, they could have particular trouble evaluating many product alternatives. Thus, people who have difficulties evaluating likely experience more stress or feel less satisfied with their choices, if they have had many options from which to choose.

Finally, evaluation difficulty could explain why people use simple heuristics to make decisions. When they have a hard time evaluating products, people might count on irrelevant attributes instead of pursuing an accurate product evaluation. For example, they might decide to buy a product because its high price signals high quality. Evaluation difficulty also might explain why some consumers never seek variety, stay loyal to certain brands, and so on. In summary, we suggest that individual differences in evaluation difficulty relate to various consumer behaviors. Therefore, we develop a new scale measure to assess these individual differences in evaluation difficulty.

2. DEVELOPMENT AND VALIDATION OF THE EVALUATION DIFFICULTY SCALE

Scale Development. We first discussed the concept of evaluation difficulty with a group of six experts, with broad knowledge of psychology and consumer behavior. From this group discussion, we generated an initial pool of 32 items to reflect the difficulties people experience when engaging in evaluation. To develop the evaluation difficulty scale, we ran an online study in which 476 U.S. citizens participated in return for payment. The participants were recruited from an online panel of Global Market Insite, Inc., a market research service that maintains a representative panel of more than 1 million U.S. citizens. The sample included 47.5% men and 52.5% women, with an average age of 43.32 years (*SD* = 12.12), ranging from 20 to 65 years. All the respondents were fully employed, and their ethnic distribution was as follows: 84.7% Caucasian, 7.4% African American, 3.4% Asian, 3.2% Latino, and 1.5% other.

All participants indicated the extent to which they agreed with these 32 items on a seven-point Likert scale (1 = “strongly disagree,” 7 = “strongly agree”). To ensure exploratory factor analysis (EFA) was appropriate, we conducted both the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and the Bartlett test of sphericity (Kaiser, 1974). The KMO level of .87 and the significance of the Bartlett test indicated that factor analysis was appropriate for the data (Kaiser, 1974). We conducted the EFA to determine the factor structure of the evaluation

difficulty items and to reduce the initial item pool. Items that violated standard criteria, such as those with corrected item-to-total correlations below .30, were deleted from the factor solution (DeVellis, 1991). By extracting eigenvalues greater than 1, our principal components analysis with Varimax rotation resulted in two factors. The cumulative percentage of total variance explained by this factor solution was 68.96%. However, this extraction method resulted in a factor on which only one reversed item loaded highly. Therefore, we decided to create a single factor with six items, including the reversed item (see Table 1). Confirmatory factor analysis showed that this six-item, one-factor model fit the data extremely well: χ^2/df = 1.24, p = .26; root mean square error of approximation = .026; root mean residual = .032; Tucker-Lewis index = .995; and goodness-of-fit index = .99. Finally, the reliability analysis revealed that this six-item evaluation difficulty scale offered a reliable measure, with a Cronbach's alpha of .83 and an average inter-item correlation of .45. These results confirm the valid, reliable six-item measure of individual differences in evaluation difficulty.

Table 1. Factor Analysis of the Evaluation Difficulty Scale

Factor	**F1**	**F2**	**F**
It is often hard for me to decide whether I am in favor of or against something.	.83	.04	.85
When I know arguments in favor of and against something, I find it hard to decide what the correct point of view is.	.82	-.05	.79
I find it hard to judge whether I find a product good or bad.	.81	-.08	.77
It takes me quite some time to decide how good or bad I find something.	.75	.06	.76
When I experience something new, I am often not sure how much I like it.	.74	.05	.76
I have a lot of confidence in my own judgments. (R)	.01	.99	.47

Notes: Item marked by "R" was reverse scored in the analysis. The first factor analysis was a principal components analysis (PCA) with Varimax rotation, using eigenvalues greater than 1. The second factor analysis was a PCA with a fixed one-factor solution, as displayed in the last column.

Nomological Validity. We averaged the responses of each participant to obtain a measure of evaluation difficulty. To test for nomological validity, we assessed the relationship between evaluation difficulty and 10 related personality measures. In line with our expectations, evaluation difficulty related to need for cognition, or how likely people were to think about complex problems (e.g., "I would prefer complex to simple problems"; α = .88; r = -.34; need for cognition; Cacioppo & Petty, 1982), and how much they trust their gut feeling (e.g., "My initial impressions of people are almost always right"; α = .91; r = -.29; faith in intuition; Epstein et al., 1996). Thus, people may experience difficulties to make evaluations because they are both less likely to count on their cognitive capacities and on their gut feeling when

making evaluations. As a consequence of these evaluation difficulties, people may as well encounter difficulties to make decisions. Indeed, we found that evaluation difficulty is positively related to how much people seek to maximize their outcomes in choice situations (e.g., "When I am in the car listening to the radio, I often check other stations to see if something better is playing, even if I am relatively satisfied with what I'm listening to"; α = .81; *r* = .35; maximization; Schwartz et al., 2002), and how much they are inclined to display decision difficulty (e.g., "I usually have a hard time making even simple decisions"; α = .84; *r* = .63; decision difficulty; Turner, Rim, Betz, & Nygren, 2012). In addition, people who have a hard time to evaluate may rely more on social information as they lack confidence in their own evaluation skills. In line with our expectations, we found that people experienced more evaluation difficulty when they tended to look for social information (e.g., "I always pay a lot of attention to how I do things compared with how others do things"; α = .85; *r* = .22; social comparison orientation; Gibbons & Buunk, 1999). Moreover, people with evaluation difficulties tended to go back and forth when making decisions (e.g., "I find that my mind often goes over things again and again"; α = .94; *r* = .40; rumination; Brinker & Dozois, 2009), disliked making mistakes (e.g., "I get mad at myself when I make mistakes"; α = .89; *r* = .18; perfectionism; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Kopalle & Lehmann, 2001), and did not display a high need to evaluate (e.g., "It is very important to me to hold strong opinions"; α = .82; *r* = -.20; need to evaluate; Jarvis & Petty, 1996). Finally, we expected that experiencing difficulties with evaluating may be positively related to self-esteem. Possibly, people who lack self-esteem may consequently lack confidence in their evaluations, and people with difficulties to evaluate may consequently feel worse about themselves. The results showed that people who struggled with evaluations indeed exhibited lower self-esteem (e.g.; "At times I think I am no good at all"; α = .91; *r* = -.42; self-esteem; Rosenberg, 1965), though evaluation difficulty was not related to subjective happiness (e.g., "In general, I consider myself not a very happy person" α = .88; *r* = -.10; subjective happiness; Lyubomirsky & Lepper, 1999). Taken together, evaluation difficulty related to important personality measures, and it may affect how people feel and behave in their daily lives. For an overview of the results, we refer to Table 2. Taken together, these results confirm that the current evaluation difficulty scale has sufficient nomological validity.

Table 2. Correlations of Evaluation Difficulty with Related Constructs

Measurement	r
Maximization inventory	
Decision difficulty	.63**
Satisficing	-.25**
Alternative search	.03
Subjective happiness	-.10
Need for cognition	-.34**
Faith in intuition	-.29**
Rumination	.40**
Perfectionism	.18*
Self-esteem	-.42**
Social comparison	.22*
Maximization	.35**
Need to evaluate	-.20*

**Correlation is significant at .01 level (two-tailed).
*Correlation is significant at .05 level (two-tailed).

Discriminant Validity. The correlation of .63 between evaluation difficulty and decision difficulty was the highest of all related constructs. Although two constructs are distinct if their correlation is less than .90 (Fornell & Larcker, 1981), we aimed to demonstrate discriminant validity by constraining the correlations of both evaluation and decision difficulty, then comparing the χ^2 of the constrained and unconstrained models (Ruvio, Shoham, & Brencic, 2008). The χ^2 difference between models was significant ($\Delta\chi^2 = 27.869$; df = 1; $p < .0001$), indicating discriminant validation (Anderson, Gerbing, & Hunter, 1987; Gerbing & Anderson, 1988; Ruvio et al., 2008). As such, the results confirm that evaluation difficulty and decision difficulty are two distinct constructs; their high correlation implies that decision difficulty may (partially) stem from evaluation difficulty. We will disentangle both measures further by investigating to what extent both measures predict the same consumer behavior.

Known-Group Validity. We propose that evaluation difficulty is a rather stable personality measure. However, people plausibly may experience less evaluation difficulty as they get older. A known-groups validation test is thus appropriate, because we expect naturally existing groups to differ meaningfully on our evaluation difficulty scale (Lastovicka et al., 1999). Therefore, we divided all participants into three age groups: young adults from 20 to 35 years, middle-aged people from 36 to 50 years, and people older than 50 years. In line with our expectations, people experienced less difficulty evaluating as they grew older ($F(2,342) = 11.67$; $p < .001$). The oldest group scored lower on evaluation difficulty ($M = 2.33$) than people aged 20 to 35 years ($M = 2.91$; $p < .001$) or 36 to 50 years ($M = 2.57$, $p = .098$). The two latter groups also differed significantly ($p = .013$). Thus, people appear to gain confidence

in their abilities to evaluate as they gather experiences during their lives. We like to note that we did not found gender differences in evaluation difficulty ($F(1,342) = .07$; $p = .80$).

Construct Validity. To test the basic hypothesis that people with high evaluation difficulty experience more difficulties evaluating, we ran an online study with 210 U.S. citizens (75 men; mean age = 33.40 years; *SD* = 11.59). Participants were recruited using Amazon's Mechanical Turk and compensated for their time. First, participants indicated the extent to which they agreed with six items on the evaluation difficulty scale using a seven-point Likert scale (1 = "strongly disagree," 7 = "strongly agree"). The scale explained 68.59% of the variance, and internal consistency was .84. Second, we presented two short descriptions of similar books. Participants had to estimate the quality of both books and indicate how difficult this evaluation was, on a scale from 0 (= "very easy") to 100 (= "very difficult"). Third, we assessed several consumer behaviors that might relate to the evaluation construct: brand loyalty (e.g., "I will consume only certain brands, not others"; α = .71; Mittal, 1994), variety seeking (e.g., "I like to try different things"; α = .89; Donthu & Gilliland, 1996), and consumers' need for uniqueness (e.g., "As a rule, I dislike products or brands that are customarily bought by everyone"; α = .89; Ruvio et al., 2008).

These results showed that people who scored high on the evaluation difficulty scale explicitly noted the hard time they had evaluating the quality of the two described books ($r = .30$; $p < .001$). In line with our expectations, people who had a hard time making evaluations also were loyal to certain brands ($r = .20$; $p = .004$). Once they have made up their mind about one brand, they are less likely to consider another brand. In line with this reasoning, we found that people with high evaluation difficulty sought less variety ($r = -.37$; $p < .001$). Moreover, people who did not know what they liked were less inclined to express their uniqueness through a brand ($r = .14$; $p = .04$). These results supported the construct validity of our evaluation difficulty scale and suggested that it could also predict consumer behavior.

3. HOW EVALUATION DIFFICULTY AFFECTS CONSUMER BEHAVIOR

Having provided evidence of the reliability and validity of the evaluation difficulty scale, we tested whether it could predict consumer behaviors that involve evaluations. With study 1, we investigate whether evaluation difficulty resulted in a preference for a relatively small choice set. That is, people who have a hard time evaluating may encounter particular

difficulties evaluating many product alternatives and therefore prefer small choice sets over large ones or feel less satisfied with their choices if they have many options from which to choose. Moreover, evaluation difficulty may result in suboptimal decisions, because people are less eager to make evaluations and potentially more likely to use simple heuristics for their decisions. Study 2 investigates whether people are more likely to count on price to gauge product quality, rather than on their own taste evaluations. As participants actually evaluated how products tasted, this study reflects the influence of evaluation difficulty on actual product evaluations. In addition, we will not only test the impact of evaluation difficulty on consumer behavior, but we will also investigate to what extent decision difficulty is able to predict this consumer behavior.

4. STUDY 1: TOO-MUCH-CHOICE EFFECT

According to most choice theories in psychology and economics, people should always have a preference, even if they have the possibility to choose from a seemingly inexhaustible array of product alternatives (Scheibehenne, Greifeneder, & Todd, 2010; Schwartz, 2000). Nevertheless, having a lot of options does not necessarily increase people's consumer satisfaction. As noted before, consumers may even experience negative effects of too many choice options. This so-called "paradox of choice" (Schwartz, 2000, 2009) has been investigated thoroughly in the domain of consumer psychology and decision making (e.g., Botti & Hsee, 2010; Botti & Lyengar, 2004; Iyengar & Lepper, 2000; Scheibehenne, Greifeneder, & Todd, 2009, 2010).

However, not everyone will experience these difficulties to choose to the same extent. Schwartz and colleagues (2002) demonstrated that especially people who are motivated to make the best possible choice (i.e., maximizers), can experience feelings of stress when they have a lot of alternatives, and are more likely to regret their choice afterwards. As decision difficulty is an important factor of maximizing behavior, we expect that individual differences in decision difficulty could predict the too-much-choice effect. However, in order to make decisions, people have to make evaluations first. In the current study, we suggest that these difficulties to choose might arise from intrinsic difficulties to evaluate the given options. Therefore, we expect that individual differences in evaluation difficulty might as well moderate the negative effects from choice overload. We thus expect that the too-much-choice effect may stem both from difficulties to make evaluations and difficulties to make decisions.

4.1 Participants and Procedure

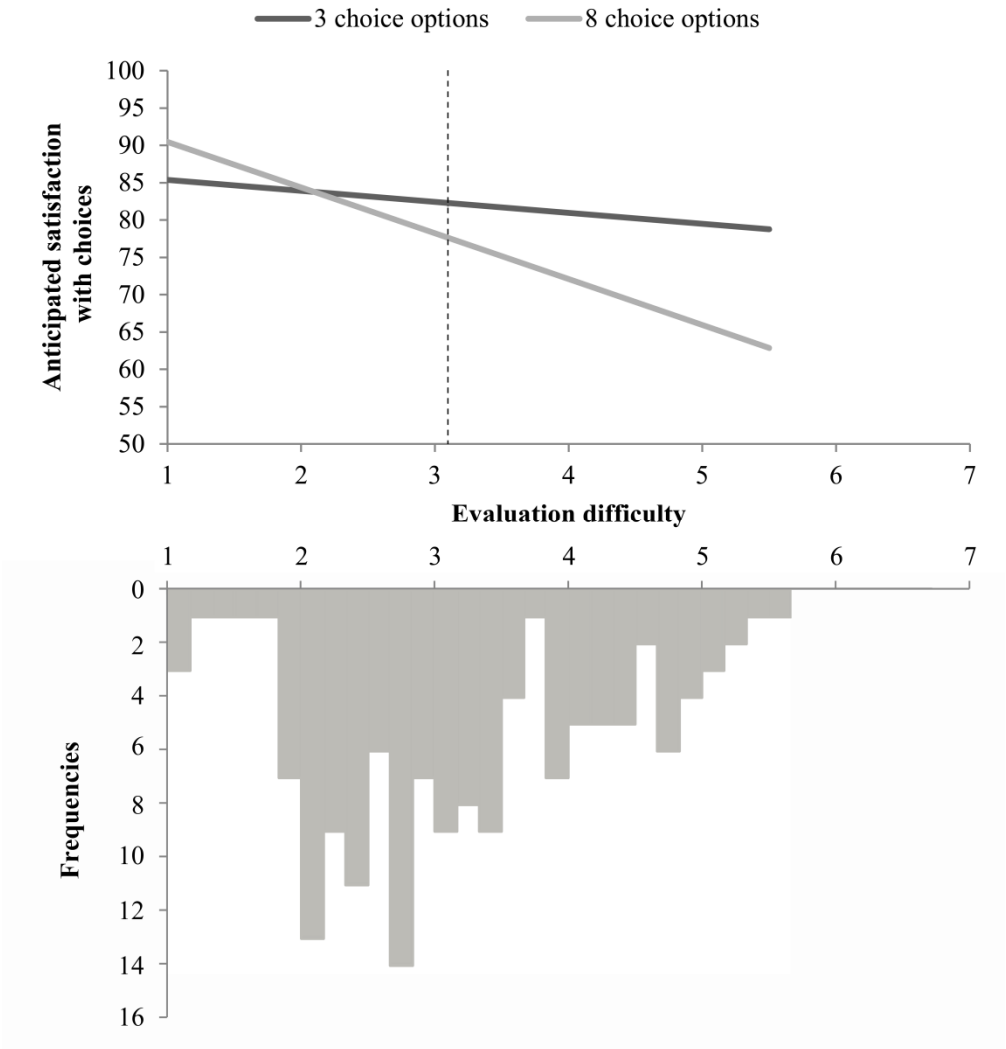
We ran an online study with 146 people (73 men; mean age = 32.86 years; *SD* = 13.57). We assessed participants' individual evaluation difficulty differences on a seven-point Likert scale (1 = "strongly disagree," 7 = "strongly agree"; *M* = 3.06, *SD* = 1.03, see figure 1 for distribution). The internal validity of the scale was high, with a Cronbach's alpha of .83. In addition, we measured the extent to which people have difficulties to make decisions on a seven-point Likert scale (Cronbach's α = .81; *M* = 3.56, *SD* = .87; *r* = .65; Turner et al., 2012). Next, we asked participants to imagine they had to go grocery shopping for five products: jam, detergent, toothpaste, orange juice, and coffee. We selected these basic products because participants should not be highly involved with choosing such fast moving consumer goods. Participants were randomly assigned to one of two conditions. Half the participants had to select one product out of three product alternatives for each product category; the other half considered eight options from which to choose. We presented eight options in the large choice set condition to ensure the shopping task was not overwhelmingly difficult for participants; increasing the number of choice alternatives too much might have decreased all participants' motivation to make a well-considered choice. To make this task more realistic too, we provided actual product prices. After finishing the shopping task, participants estimated how satisfied they were going to be with the products they had selected on a 100-point scale (0 = "completely dissatisfied," 100 = "completely satisfied").

4.2 Results

The results showed a main effect of evaluation difficulty on anticipated satisfaction with choices ($F(1,146) = 10.27$; $p = .002$). The more people experienced difficulties in their evaluating, the less satisfied they predicted they would be with the products they had selected. More important, we found an interaction effect between evaluation difficulty and the choice set on choice satisfaction (see figure 1). In the small choice set condition, participants who experienced evaluation difficulty (1 SD above the mean of the evaluation difficulty scale; *M* = 80.82) indicated a similar level of satisfaction as participants who did not have a hard time making evaluations in general (1 SD below the mean of the evaluation difficulty scale; *M* = 83.85; $t(146) = -1.03$, $p = .31$). In the large choice set condition, participants who had not experienced evaluation difficulty (*M* = 84.15) expected to be as satisfied as the participants

who had only three options from which to choose (M = 83.85; t(146) = .09, p = .93). However, participants who had difficulties evaluating anticipated being significantly less satisfied with their choices if they had a lot of options from which to choose (M = 71.49; t(146) = -2.65, p = .009). A floodlight analysis (Spiller, Fitzsimons, Lynch, & Mcclelland, 2013), using the Johnson-Neyman technique (Hayes, 2012), revealed that the participants being significantly less satisfied with their choices if they had eight rather than three choice options, as long as they scored 3.10 (1–7 scale) or higher on the evaluation difficulty scale. Thus, people who struggled making evaluations indeed were more likely to experience the too-much-choice effect.

Figure 1. Too-much-choice effect and moderation by evaluation difficulty (with distribution of evaluation difficulty)



Notes: The dashed line indicates the boundary of the region of significance at $p < .05$. Mean – 1SD = 2.03; Mean + 1SD = 4.09.

In addition, we suggested that individual differences in decision difficulty may as well predict to what extent consumers are satisfied with their selected products. However, we did not find a main effect of decision difficulty on anticipated satisfaction with choices ($F(1,146) = 2.17$; $p = .14$). Moreover, the results did not show an interaction effect between decision difficulty and choice set on anticipated satisfaction with their choices ($F(1,146) = .07$; $p = .79$). In an additional analysis with both individual differences in evaluation and decision difficulty as independent variables, we still found a significant main effect of evaluation difficulty ($F(1,146) = 8.10$; $p = .005$), as well as a significant interaction effect between evaluation difficulty and choice set on anticipated satisfaction ($F(1,146) = 4.19$; $p = .04$). Thus, decision difficulty had no influence on the too-much-choice effect, and controlling for individual differences in decision difficulty still resulted in a significant impact of evaluation difficulty on participants' anticipated satisfaction.

4.3 Discussion

Consistent with our main hypothesis, individual differences in evaluation difficulty moderated the negative effects of too much choice. Only when people lacked confidence in their evaluation skills did they predict they would be less satisfied with their choices if they had eight options from which to choose. In contrast, having difficulties to make decisions did not affect choice satisfaction. As decision difficulty is an important factor of maximizing behavior, we expected in line with Schwartz and colleagues (2002) that decision difficulty could explain why some people experience more negative effects from choice overload than others. However, in accordance with Scheibehenne and colleagues (2009, 2010), we could not replicate this finding. Possibly, the largest choice condition still contained too little choice options for people with decision difficulty to experience negative effects of choice overload. While previous research has suggested that people can optimally process a maximum of six choice alternatives (Malhotra, 1982), choosing from eight options may still have been too easy for people who experience decision difficulty. Iyengar and Lepper (2000), for example, demonstrated the too-much-choice effect when people had to choose from a limited array of six choices compared to an extensive array of 24 or 30 choices. Nevertheless, our results do show that people who experience difficulties to make *evaluations* are already less satisfied with their choices when they had three versus eight options to choose from. Thus, choosing from eight product alternatives already decreases the choice satisfaction of participants with

high evaluation difficulty. Having a hard time evaluating in general lowered consumers' satisfaction quite rapidly with increasing numbers of choice options. Considering that consumers often have many more than eight options, the findings indicate that people who experience evaluation difficulty may be very prone to the negative effects of choice overload.

5. STUDY 2: TASTING CHIPS WITH OR WITHOUT PRICE INFORMATION

Extensive research in psychology and consumer behavior demonstrates that people use heuristics or rules of thumb in their decision making (Gigerenzer & Gaissmaier, 2011; Hutchinson & Gigerenzer, 2005; Marewski, Gaissmaier, & Gigerenzer, 2010). People do not always have sufficient time, motivation, or cognitive capacities to make rational choices, such that their rationality is bounded by internal and external limitations, leading them to use simple strategies or heuristics to make decisions (Simon, 1955; Todd & Gigerenzer, 2003). We propose that people use these heuristics when they lack confidence in their evaluations too. As such, we expect that people who have difficulties with evaluating would be more likely to count on extrinsic cues to assess the quality of products rather than on their own evaluations. In this study, we investigate whether they are more prone to use price information as a signal of quality. People who have a hard time evaluating in general then may be more likely to base their taste evaluations on price information. Moreover, they would find it hard to decide which product version they liked the best, if no signals of quality were available. To test whether people who experience evaluation difficulty are less likely to taste quality differences, we needed a product that varied in quality but looked very similar. We selected chips. As participants have to make taste *evaluations* rather than purchase *decisions*, we expect that individual differences in decisions difficulty will not affect to what extent people follow a price-quality heuristic to evaluate how good the chips taste.

5.1 Pretest

We chose paprika-flavored chips for this study; it is a standard taste that many people enjoy. For the highest quality chips, we selected a world-leading, A-level brand; for the lowest quality chips, we selected chips produced by a discount brand. We bought the chips from the A-level brand and the discount brand in the same store for USD 1.75 and USD .93

per bag, respectively. The chips of both brands looked highly similar. Seventeen people (8 men; mean age = 25.88 years; *SD* = 1.97) participated in a blind taste test. They tasted the chips from each brand and indicated on a 10-point scale how much they liked each brand of chips. In line with our expectations, we found that the chips from the A-level brand (*M* = 7.65) tasted significantly better than the chips from the discount brand (*M* = 6.59, *t*(16) = 2.76; *p* = .014). The lowest quality chips also tasted good, so the quality difference between both types of chips was not too substantial. The more people experienced evaluation difficulty, the less they distinguished between the two types of chips in a blind taste test. Moreover, we hypothesize that they should distinguish more the chips when they receive information about the price of the chips, so that the highest priced chips seem to taste better. As stated before, we expect that individual differences in decision difficulty will have no impact at all on these evaluations.

5.2 Participants and Procedure

In the main laboratory experiment, 58 European students participated in return for a participation fee or partial course credit (22 men; mean age = 24.72 years; *SD* = 7.56). First, they completed both the evaluation difficulty scale (Cronbach's α = .74, *M* = 3.38, *SD* = .84, see figure 3 for distribution) and the decision difficulty scale (Cronbach's α = .78, *M* = 3.84, *SD* = .76; *r* = .64; Turner et al., 2012) on a seven-point Likert scale (1 = "strongly disagree," 7 = "strongly agree"), as part of a seemingly unrelated task. Second, they participated in a blind taste test, in which they were randomly assigned to a condition in which they had no information about the price of the chips or a condition in which they received the actual price information. Next to their computer screens, all participants found two plastic plates, containing 30 grams of chips each, and a plastic cup of water. Each plate was marked with the letter A or B, so that participants could distinguish between chips from brand A and brand B. They were asked to taste the chips of brand A and indicate how much they liked them on a 10-point scale (0 = "very bad," 10 = "very delicious"). Next, they could rinse their mouths with some water before tasting the chips of brand B. Again, participants had to indicate how much they liked these chips on the same 10-point scale. The letter assignments to the types of chips were counterbalanced, so that the order of tasting could not have influenced the results. Finally, we asked the respondents about the extent to which they liked to eat chips in general on a seven-point Likert scale (0 = "not at all," 7 = "very much"). Thus we could calculate the

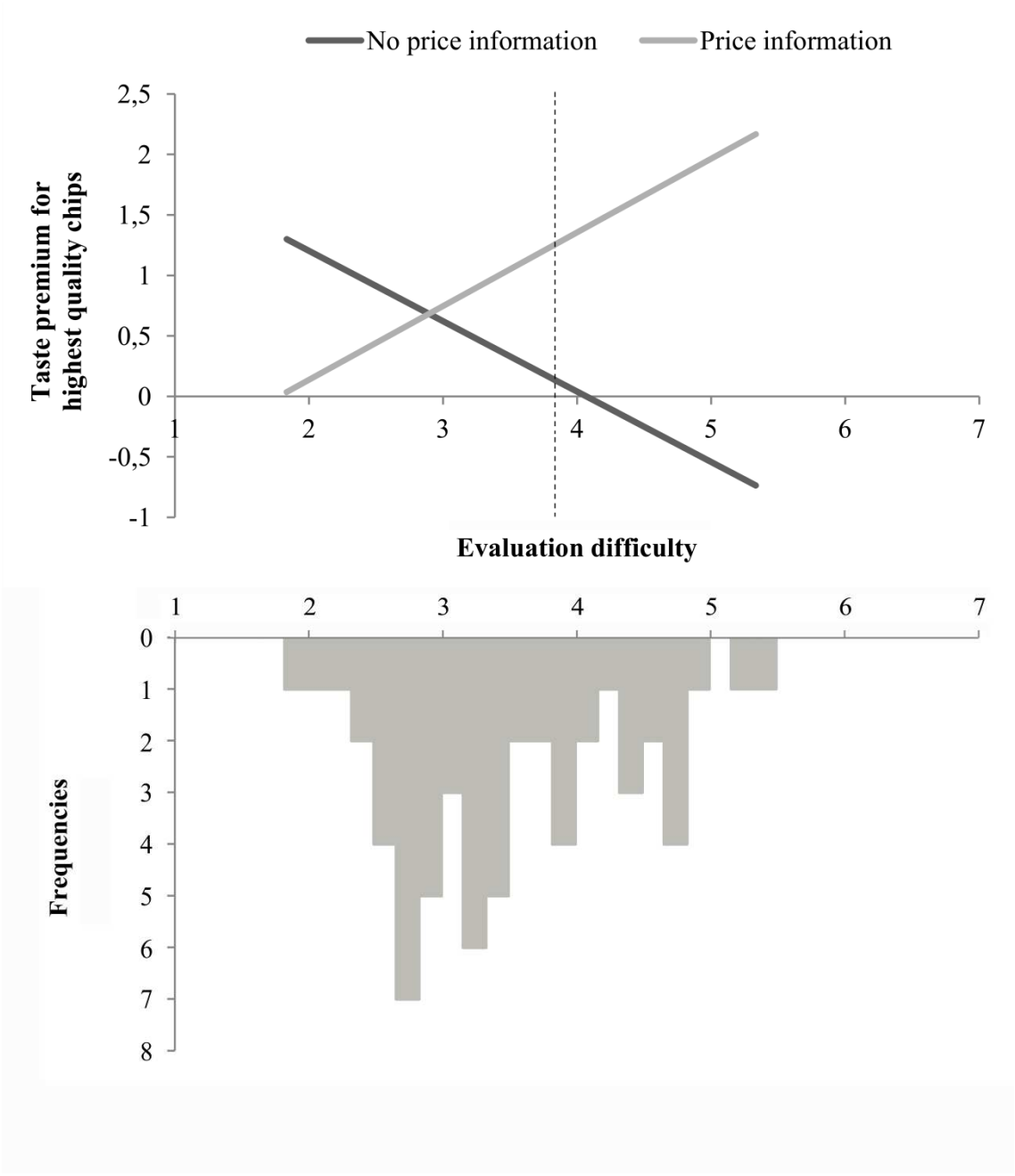
difference between taste evaluations and predict the extent to which participants assigned more quality to the highest quality chips.

5.3 Results

Neither evaluation difficulty ($F(1,58) = .002$; $p = .96$) nor price condition ($F(1,58) = 2.86$; $p = .10$) had a main effect on the taste premium for the highest quality chips. We found a marginally significant main effect of our control variable ($F(1,58) = 3.88$; $p = .054$): The more people liked to eat chips in general, the more quality they assigned to the highest quality chips. More important, the results showed a significant interaction effect between evaluation difficulty and price condition on the taste premium for the highest quality chips ($F(1,58) = 4.13$; $p = .047$, see figure 2). In the condition in which participants had no information about the price, those who did not experience evaluation difficulty (mean – 1 SD) assigned more quality to the highest quality chips ($M = .89$). In contrast, participants who struggled to evaluate (mean + 1 SD) did not distinguish between types of chips ($M = -.09$). That is, people with evaluation difficulties actually had a hard time evaluating the taste of chips when they have no other information on which to base their evaluations. In the condition with actual price information, participants who had a hard time evaluating instead rated the highest quality chips as better tasting than the lowest quality chips ($M = 1.49$, $t(58) = 2.27$; $p = .03$). Participants who experienced no evaluation difficulty assigned the same taste premium to the highest quality chips as those in the no price condition ($M = .47$, $t(58) = -.61$; $p = .54$). Taken together, these results suggest that people who were able to evaluate did not allow their taste assessments to be influenced by price information, whereas those who had a hard time relied on the provided price information, because they lacked confidence in their own taste evaluations.

In addition, we tested the influence of decision difficulty on participants' taste evaluations. In line with our expectations, we did not find a significant main effect of decision difficulty ($F(1,58) = .42$; $p = .52$) on the taste premium for the highest quality chips. We also did not find an interaction effect between decision difficulty and price condition on the taste premium ($F(1,58) = 2.40$; $p = .14$). Moreover, controlling for individual differences in decisions difficulty did not eliminate the effects of evaluation difficulty on the taste evaluations. Thus, people who experienced evaluation difficulty were still more likely to assign greater quality to the highest priced chips when we controlled for individual differences in decision difficulty.

Figure 2. Interaction effect between evaluation difficulty and price condition on the taste premium for the highest quality chips (with distribution of evaluation difficulty)



Notes: The dashed line indicates the boundary of the region of significance at $p < .05$. Mean – 1SD = 2.54; Mean + 1SD = 4.22.

5.4 Discussion

Consistent with our hypothesis, people who experienced difficulties in evaluating did not trust their own taste evaluations. In a blind taste test, they did not distinguish between types of chips that differed in quality. Only when they knew that the chips from one brand cost more did they evaluate them as better tasting. Overall then, people who experience difficulties in making evaluations appear to trust price information more than their own taste evaluation when they must determine how much they like something. Moreover, the results suggest that people who have a hard time evaluating are less likely to make accurate evaluations in the absence of a diagnostic cue. In contrast, individual differences in decision difficulty could not predict to what extent people count on price information for evaluating taste. Moreover, evaluation difficulty may as well result in the use of simple heuristics for decision making, such that it even could reduce decision difficulty in certain circumstances. Taken together, this study confirms that our evaluation difficulty scale can predict actual consumer behavior that cannot be predicted by individual differences in decision difficulty.

6. **GENERAL DISCUSSION**

We propose a new individual difference variable related to the extent to which people experience difficulties with evaluations in general. Some people find it hard to know how much they like something. Whether they evaluate product alternatives or make taste evaluations, some people have a hard time knowing how much they like something. To measure these individual differences in evaluation difficulty, we have constructed a valid, reliable six-item scale. The evaluation difficulty construct relates to several other personality measures; in addition, the scale measure can predict various consumer behaviors. Study 1 showed that individual differences in evaluation difficulty moderated the too-much-choice effect. People who have a hard time evaluating are less satisfied with their product choices when the number of product alternatives from which they must choose becomes moderately high. Study 2 demonstrated that people who lack confidence in their evaluation skills were more likely to count on other product attributes to evaluate what they taste. In particular, we found that people who have difficulties making evaluations trust price information more than their own taste evaluations. Moreover, these people were less likely to make accurate evaluations. People who struggle with evaluation difficulty cannot distinguish types of chips

in a blind taste test, even though the quality of the chips differed. Thus, people who lack confidence in their own evaluation skills are less likely to make accurate evaluations, are more likely to experience negative effects of too much choice, and draw more on external information to evaluate the quality of products they taste.

Although people clearly can differ in the extent to which they experience difficulties with evaluations, it remains uncertain which circumstances cause such evaluation difficulties to arise. We suggest that individual differences in evaluation difficulty might come into play mainly in moderately difficult situations. In the too-much-choice study, people had to choose between three and eight choice options. Prior research stated that people can optimally process six choice options (Malhotra, 1982). While eight choice options may already be difficult to evaluate, they are definitely easier to evaluate than an extensive choice set of more than twenty options such as in other choice overload studies (e.g., Iyengar & Lepper, 2000). In the chips study, participants had to evaluate two concealed brands of chips. Even if this evaluation task might not have been easy, it was not overly difficult either as participants could directly compare the two brands of chips. Thus, individual differences in evaluation difficulty might only have an effect in moderately difficult situations. When an evaluation is very difficult, everyone experiences evaluation difficulty; when it is extremely easy, no one likely has difficulties, even those people who generally lack confidence in their own judgments. However, when an evaluation is moderately difficult, people may find it hard to make the assessment, especially those who generally experience difficulties with evaluations. Further research is needed to test this prediction.

We also might consider who is more prone to evaluation difficulties. We show that our evaluation difficulty scale relates to several personality measures. Interestingly, we found that evaluation difficulty relates negatively to individual differences in both intuitive-experiential and analytical-rational thinking styles (Epstein et al., 1996). Whether people count on their gut feeling or some ratio to form their opinion, they are unlikely to experience difficulties with evaluations when they have confidence in their judgments. Furthermore, evaluation difficulty relates negatively to self-esteem. On the one hand, evaluation difficulty might harm people's sense of self, in that a lack of knowledge of how to evaluate basic things plausibly could affect people's self-esteem in the long term. On the other hand, low self-esteem might trigger evaluation difficulty. People who already feel bad about themselves also might feel insecure about their evaluations. Alternatively, both variables could affect each other. Additional research should examine this causal relation between self-esteem and evaluation difficulty.

Beyond its causes, it would be interesting to investigate the outcomes of evaluation difficulty. We have argued that decision difficulty might be a direct consequence of evaluation difficulty, in which case we would expect a strong relationship between the two constructs. The highest correlation emerged between evaluation difficulty and the decision difficulty subscale of the maximization inventory (Turner et al., 2012). However, we strongly believe that this correlation of .63 is not problematic, for several reasons. First, the two constructs differ conceptually: Decision difficulty measures difficulties with deciding only, whereas evaluation difficulty measures how people experience difficulties evaluating what they see, feel, smell, or taste. Evaluation difficulties could have major implications for people's emotional states, as well as multiple behavioral outcomes. We argue that decision difficulties are merely one of the possible negative outcomes of evaluation difficulties. Second, we have demonstrated that evaluation difficulty can predict several consumer behaviors that are not affected by decision difficulty. In particular, we found that evaluation difficulty can predict both anticipated satisfaction with purchase decisions and taste evaluations, whereas decision difficulty could not predict these behaviors. Even in the context of decision making, evaluation difficulty may be a better predictor than decision difficulty as consumers often engage in evaluations before they can make a decision. Further research should seek to disentangle evaluation and decision difficulty more clearly, as well as investigate possible other outcomes.

This study demonstrates that the evaluation difficulty scale can predict *actual* consumer behavior. Nevertheless, we merely focus on taste evaluations; it would be interesting to investigate whether evaluation difficulty also affects other types of actual evaluations. People who find it hard to evaluate also may have difficulties evaluating what they see, smell, feel, or hear. Do people with evaluation difficulties lack confidence in evaluations based on senses other than taste? Moreover, our taste study focused on the use of simple heuristics in decision making, but we anticipate that our proposed evaluation difficulty scale might be able to predict a wide array of consumer behaviors. People who experience difficulties in evaluations might not only rely more on product attributes as signals of quality to decide how much they like something but also turn to social comparison information or previously gathered knowledge to make their evaluations. Once people who struggle with evaluations are satisfied with a brand, they are unlikely to switch to another brand. Further research therefore should investigate whether people who find it hard to evaluate also rely more on the opinions of others. For example, evaluation difficulty may result in a stronger tendency to buy popular products, because people who have a hard time evaluating may count more on the opinion of

others than on their own evaluations. Or they may be more likely to buy standardized products, rather than personalized options, because they do not really know what they like.

Although we show that some people lack confidence in their own evaluation skills, the question remains whether they actually suffer from low evaluation skills or merely think they do. Study 2 reveals that people who experience evaluation difficulty are less likely to assign more quality to the highest quality chips in a blind taste test. On first sight, this finding implies that people who have a hard time evaluating are actually worse evaluators than those who find it easy to evaluate. However, they also might simply be less willing to report their evaluations, because they wrongly lack confidence in their judgments. Further research should seek to determine whether people who have a lot of evaluation difficulty are less able to make accurate evaluations or less willing to report their evaluations.

Taken together, we demonstrate that people differ in the extent to which they have a hard time evaluating and find that some people experience more negative effects of too many choice options and are more likely to count on external information than on their own evaluations to decide how much they like something. Because they do not trust on their own evaluation skills, they follow simple heuristics in decision making. We thus contribute to literature on decision making and judgments; this general tendency to lack confidence in one's own evaluation skills may have major implications for both people's emotional state and their behavioral outcomes. Individual differences in evaluation difficulty might explain a wide array of consumer behaviors. Further research therefore should investigate the effects of evaluation difficulty on various consumer behaviors. With this study, we can conclude that people differ in the extent to which they have difficulties evaluating how much they like something. To like or not to like? That's the question—at least for people who experience strong evaluation difficulty.

CHAPTER

4

JUDGING BY APPEARANCES: THE EFFECT OF CONSUMERS' PHYSICAL APPEARANCE ASPIRATIONS ON PRODUCT PREFERENCES

CHAPTER IV: JUDGING BY APPEARANCES: THE EFFECT OF CONSUMERS' PHYSICAL APPEARANCE ASPIRATIONS ON PRODUCT PREFERENCES

Are consumers who value being physically attractive more attracted to beautiful products than consumers who attach less importance to being attractive? At first blush, the question seems trivial. After all, one could argue that consumers may view beautiful products as a means to attain their goal of being attractive. One could also surmise that wanting to be attractive may stem from a deeper desire of having beauty in one's life. This may result in a preference to surround oneself with beautiful things. But what about products that may not serve the goal of being physically attractive, like a box of chocolates, or may not feature prominently in one's environment, like laundry detergents? The present paper offers a somewhat surprising answer to these questions. In particular, we suggest that the preference for beautiful products may partly stem from an overgeneralization of the beauty-is-good heuristic that is frequently used to evaluate *people* (Dion, Berscheid, & Walster, 1972). In addition, we show that people aspiring physical attractiveness are especially likely to use this beauty-is-good heuristic.

The present research contributes to three streams of research. First, we contribute to research on the impact of product design on consumer choice. Prior research has extensively investigated the impact of both aesthetic and non-aesthetic design elements (e.g., product form and ergonomics) on consumer choice (Bloch, Brunel, & Arnold, 2003; Bloch, 1995) and what design elements cause aesthetic appeal (Deng, Hui, & Hutchinson, 2010; Silvera, Josephs, & Giesler, 2002; Veryzer & Hutchinson, 1998). While most of this research has ignored heterogeneity in the impact of product aesthetics, some research did establish that consumers may differ in how they react to the visual appeal of products (Bloch et al., 2003; Yang, Zhang, & Peracchio, 2010). We identify beauty aspirations as an additional individual difference that determines reactions to product aesthetics. Second, we add to research on the effects of extrinsic goals. Most of that research has focused on psychological outcomes, especially on outcomes related to well-being. In addition, any research that zoomed in on a specific extrinsic goal typically looked at the effects of pursuing money and wealth (i.e. on materialism). The present research deviates in two ways from that research; 1) we look at aspirations regarding physical attractiveness rather than regarding wealth and 2) instead of

looking at psychological outcomes, we examine consumer outcomes. Third, we contribute to research on lay beliefs regarding market mechanisms and product quality. Prior research has shown that people may view price, promotions and popularity (Deval, Mantel, Kardes, & Posavac, 2013), and production effort (Cho & Schwarz, 2008) as either positive or negative signals of product quality. In addition, this research has shown that environmental cues may determine which naïve theory is temporarily used and consequently shifts product attitudes. The present research focuses not on temporary changes in the use of naïve theories but instead shows that an individual difference characteristic may predict which specific naïve theory is chronically used in product evaluation.

1. THEORETICAL BACKGROUND

Product design is multifaceted and depicts both the functionality of products through attributes such as ergonomics and the ease of distribution, as well as the visual aesthetics of products (Bloch et al., 2003; Bloch, 1995; Hoegg, Alba, & Dahl, 2010). Prior research has mostly focused on the importance of visual product aesthetics (Hoegg et al., 2010). Researchers have demonstrated extensively that visual aesthetics can affect consumers' responses to products. Yamamoto and Lambert (1994) showed that the visual appeal of industrial products has a positive effect on their performance evaluations. Reimann and colleagues (2010) found that consumers chose products with aesthetic packages over products with well-known brands in standardized packages, even when the former were higher priced. Several researchers demonstrated that even seemingly unimportant design elements can affect consumer's responses to products. Raghubir and Greenleaf (2006), for example, found that the proportions of a rectangular package can influence consumer purchase intentions. Visual aesthetics can even influence consumer's decisions involving financial products; a domain where aesthetics are claimed to be unimportant (Townsend & Shu, 2010). In sum, the visual aesthetics of products are not only an important marketing tool to grasp consumers' attention (Bloch, 1995; Creusen & Schoormans, 2005), but may even alter consumers' product choices.

While most of this research on the impact of product aesthetics did not take consumers' personality differences into account, some research has shown that individual differences can affect product evaluations based on visual aesthetics (Bloch et al., 2003; Yang et al., 2010). Bloch, Brunel, and Arnold (2003) developed a scale that captures the importance consumers attach to the visual appeal of products. This individual difference in centrality of visual

product aesthetics (CVPA) affects both design-related product evaluations and purchase intentions (Bloch et al., 2003). Orth, Campana, and Malkewitz (2010) demonstrated that consumers who are more aesthetically involved (high-CVPA) base both attractiveness and quality judgments to a greater extent on package design, and expect higher prices for products with attractive packages than those who attach less importance to the visual appeal of products (low-CVPA). In the present paper, we investigate to what extent another individual difference can determine reactions to product aesthetics. In particular, we suggest that consumers who strongly desire to be physically attractive may react more positively to products with aesthetic packages compared to consumers who care less about physical attractiveness.

Several reasons may explain why consumers who strongly value physical attractiveness prefer attractive *products*. First, people who desire to be physically attractive may prefer attractive products because these products are congruent with their own identity. Consumers perceive products that they own, want to own, or do not want to own, in terms of symbolic meaning to themselves and others (Kassarjian, 1971; Levy, 1959). When the symbolic meaning of a product is congruent to one's self-image, consumers evaluate products more positively (Kassarjian, 1971). Accordingly, consumers who value attractiveness may prefer attractive products because these products symbolize attractiveness. As such, consumers who want to be physically attractive may be more likely to buy attractive products due to the congruence between the product and their desired identity.

Second, people who value their own attractiveness may prefer attractive products to construct or bolster a physically attractive self-image. Several studies have demonstrated that products can indeed affect a person's sense of self (Escalas & Bettman, 2003, 2005; Fournier, 1998). For instance, consumers who are placed in a state of low power have a stronger desire to acquire status-related products (Rucker & Galinsky, 2008) and consumers can restore their bruised ego by buying high-status goods (Sivanathan & Pettit, 2010). In general, people may use personified brands to construct their self-concepts and enhance their sense of self (Aaker, 1997; Belk, 1988; Escalas & Bettman, 2003; Park & John, 2010). In an interesting set of experiments, Park and John (2010) demonstrated that brand personalities "rub off" on consumers who think that their personalities are fixed. In particular, they found that these consumers feel better looking, more feminine and more glamorous after using a Victoria's Secret shopping bag, and more intelligent, harder working, and more of a leader after using an MIT pen. Taken together, these studies find a presumably direct link between the personality of the product and the personality that consumer wants to attain. For example, people who

want to gain status may simply buy high-status products. In a similar vein, people who want to be physically attractive may feel more attractive by buying beautiful products. Finally, buying beautiful products may not only affect one's self-perceived attractiveness, but may even affirm people's sense of self (Townsend & Sood, 2012).

While these explanations may be relevant to explain preferences for beautiful *products*, they may be less useful to explain any preference for attractive *packages*, especially for low-involvement products. As these products are mainly used in private settings, and are not relevant to build one's identity, it seems highly unlikely that people will express or enhance their personality by buying them. Even for personal care products that may be instrumental in grooming an attractive appearance, package aesthetics arguably may not rub off on consumers. Nevertheless, the package designs of FMCG's vary tremendously and it is important to understand how they may affect consumers' choices.

In general, consumers often have to buy products without prior knowledge about their overall quality. To reduce this uncertainty, consumers try to fill in this information gap by making inferences about their quality (Deval et al., 2013; Kardes, Posavac, & Cronley, 2004). To draw such inferences, consumers may use naïve theories they have about market phenomena as an inferential basis to assess the product quality (Deval et al., 2013; Kardes et al., 2004). A popular held belief is the positive correlation between price and quality (Bagwell & Riordan, 1991; Leavitt, 1954; Monroe & Krishnan, 1985; Olson, 1977; Rao, 2005; Zeithaml, 1988). While a high price may not reflect a higher objective quality (Gerstner, 1985; Rao, 2005; Tellis & Wernerfelt, 1998), consumers do overestimate the positive relation between price and quality (for an overview, we refer to two meta-analytical reviews: Rao & Monroe, 1989; Völckner & Hofmann, 2007). Another belief that consumers may hold is that companies would not give a warranty when they know the product is going to fail (Kardes et al., 2004). Such a common-sense belief could explain why consumers infer quality from warranty information (Boulding & Kirmani, 1993).

In addition to price and warranty information, consumers may also infer product quality from the aesthetic appeal of its package. While the direct link between package design and perceived quality has received surprisingly little research attention, Orth, Campana, and Malkewitz (2010) did demonstrate that consumers assign higher quality to bottles of wine with more attractive packages. Moreover, researchers did establish a link between perceived quality and product design as a whole. Dawar and Parker (1994), for instance, showed that this attractiveness-quality link is universal as people from 38 different nationalities indicated to rely on product attractiveness to assess its quality. In addition, prior research has

demonstrated extensively how visually appealing packages yield various positive outcomes, such as favorable product evaluations (Hagtvedt & Patrick, 2008; Yamamoto & Lambert, 1994), higher purchase intentions (Bloch et al., 2003; Reimann et al., 2010), and a strong desire to immediately acquire the product (Norman, 2004). Appealing packages do not only exert a positive influence on consumer's behavioral responses, but also affect their neural responses by increasing activity in the reward system of the brain (Hubert, Hubert, Florack, Linzmajer, & Kenning, 2013; Reimann et al., 2010). Taken together, we expect that appealing packages may as well have a positive influence on consumers' quality expectations.

In particular, we suggest that consumers who desire an appealing appearance may be more likely to associate attractive products with greater quality. Moreover, we propose that their belief that attractive packages signal good quality stems from an overgeneralization of a "what is beautiful is good" hypothesis (Dion et al., 1972). This hypothesis implies that people assign more socially desirable personality traits to physically attractive people and often treat them differently, a tendency that has been widely investigated and confirmed (Eagly, Ashmore, Makhijani, & Longo, 1991; Langlois et al., 2000; Reingen & Kernan, 1993). Dion and Berscheid (1974) demonstrated that people learn to associate attractiveness with socially desirable traits already during childhood. We posit that people may not only learn to associate attractive *people* with positive traits, but they may generalize this "what is beautiful is good" belief.

Generalization is a fundamental induction mechanism that allows people to apply a learned rule in another situation (Holland, Holyoak, Nisbett, & Thagard, 1986; Shepard, 1987). Learning is impossible without generalization as one situation would have no bearing at all on a highly similar, yet slightly different situation (Epstein, 1992; Shepard, 1987). People tend to generalize over discrete responses and stimuli, but they may as well generalize over broad attributions about the self and others (Epstein, 1992). Category-simplifying generalization implies that people make an existing rule more general by simply dropping part of its condition (Holland et al., 1986). However, even though generalization is a highly useful skill, people may apply these rules too excessively. Due to such overgeneralization, people may arrive at the wrong conclusions (Epstein, 1992). For example, consumers tend to erroneously infer from one-sided comparative price claims on advertisements that the advertised brand is the least expensive *overall* and consequently make suboptimal choices (Pechmann, 1996). Moreover, some people may be more likely to overgeneralize as they characteristically fail to make important discriminations (Epstein, 1992). For example, low

self-esteem people are more likely to suffer from the adverse effects of negative feedback because they tend to overgeneralize following failure (Kernis, Brockner, & Frankel, 1989).

We propose that people who believe that "what is beautiful is good" *for people* may generalize the idea that beauty is inherently good, and may consequently apply a beauty-is-good heuristic when evaluating consumer products. As such, we suggest that people who believe in the "what is beautiful is good" stereotype for people (Dion et al., 1972) may also be more likely to bestow a beauty premium on products. While the idea that beauty is inherently good for people does not exactly transfer to the realm of products, one may nevertheless believe in the idea that beauty signals good qualities both for people and products. Potentially, in the realm of products, this connection may be defended by the naïve explanation that only the best companies are able to invest in the physical appeal of their products. As with many naïve explanations of market phenomena, however, one could also believe in an opposite association (Deval et al., 2013). Indeed, consumers may just as well assume that investments in the appeal of products go at the expense of investments in the product itself. We propose that one's physical beauty aspirations predict whether one finds package appeal a positive signal or not because people with strong physical beauty aspirations are more likely to also believe in the "what is beautiful is good" stereotype for people.

It is not entirely clear what the direction is of the proposed association between physical beauty aspirations and the belief in the "what is beautiful is good" stereotype for people. On the one hand, people who aspire to physical attractiveness may want to justify their pursuit of physical attractiveness by believing that it confers benefits. This expectation is not unwarranted as attractiveness indeed confers advantages in both obvious domains, such as dating (Furnham, 2009; Huston, 1973), and less obvious realms, such as the job market. Frieze, Olson, and Russell (1991), for instance, find that highly attractive MBA graduates earn more money than their less attractive counterparts. On the other hand, people who aspire to physical attractiveness may do so *because* they believe the stereotype. Finally, the association between physical beauty aspirations and the belief in the "what is beautiful is good" stereotype for people may run both ways. Irrespective of the exact nature of the association, we argue that people who aspire to be physically attractive believe that being beautiful yields several positive outcomes. Moreover, we suggest that they may not only apply a beauty-is-good inference rule to evaluate other people, but may overgeneralize this rule and also use it to evaluate consumer products.

2. OVERVIEW OF STUDIES

The framework we propose builds on two hypotheses. First, we hypothesize that people who have a stronger desire to be physically attractive are more likely to assign positive traits to attractive people. Second, we hypothesize that the belief that beauty is inherently good in people may generalize to the belief that products with better-looking packaging are better products. Together, this leads to our main claim: people who have a stronger desire to be physically attractive are more likely to assign high quality to products with nice-looking packages.

To test the viability of our framework, we investigate first whether people who desire to have an appealing appearance indeed assign more quality to products with attractive packages compared with unattractive packages. In particular, Study 1 tests whether people who want to be physically attractive evaluate chocolates as better tasting when they are presented in an attractive compared with an unattractive box. Study 2 investigates to what extent people who want to be physically attractive are more likely to buy attractive products because they believe that attractive products are generally better products. Moreover, we aim to demonstrate that this preference for attractive products does not reflect just the higher centrality of visual product characteristics. Study 3 tests whether people who want to be physically attractive are more likely to infer quality from products because they have generalized the "what is beautiful is good" stereotype. Finally, as our framework implies that, when people need not infer objective quality, the impact of package appeal on preference should be sharply reduced; Study 4 tests this boundary condition. Taken together, we aim to uncover the process behind the attractiveness-quality link by demonstrating *why*, *when*, and *who* would follow a beauty-is-good heuristic to evaluate basic consumer products.

3. STUDY 1: IMPACTS OF PHYSICAL APPEARANCE ASPIRATIONS ON TASTE EVALUATIONS

Study 1 investigates whether people who want to be physically attractive are more likely to infer quality from attractive product packages. We test this hypothesis with real consumption by having participants evaluate how good chocolates taste. We expect that people who desire to be physically attractive evaluate the chocolates as better tasting when they are presented in an attractive compared with an unattractive box.

3.1 Participants, materials, and procedure

Ninety European students (43 men; mean age = 24.00 years, *SD* = 8.18) participated in this laboratory study, either for partial course credit or a small participation fee. Because participants had to taste the chocolate, we excluded two participants with allergy concerns. To assess the extent to which the remaining students aspire to an appealing appearance, we administered the 18-item Dutch version of the Aspiration Index developed by Kasser and Ryan (1996; translated by Vansteenkiste et al., 2006) as part of a larger questionnaire. Participants indicated the importance of six life goals to them on a seven-point scale (1 = "totally unimportant," 7 = "very important"). In addition to physical appearance aspirations, the life goals referred to personal growth, close relationships, community involvement, wealth, and fame. Including additional life goals helped disguise the true purpose of the study. To assess the respondents' inclination to pursue an attractive appearance, we averaged three items related to physical appearance goals (Cronbach's α = .80; *M* = 4.54, *SD* = 1.18).

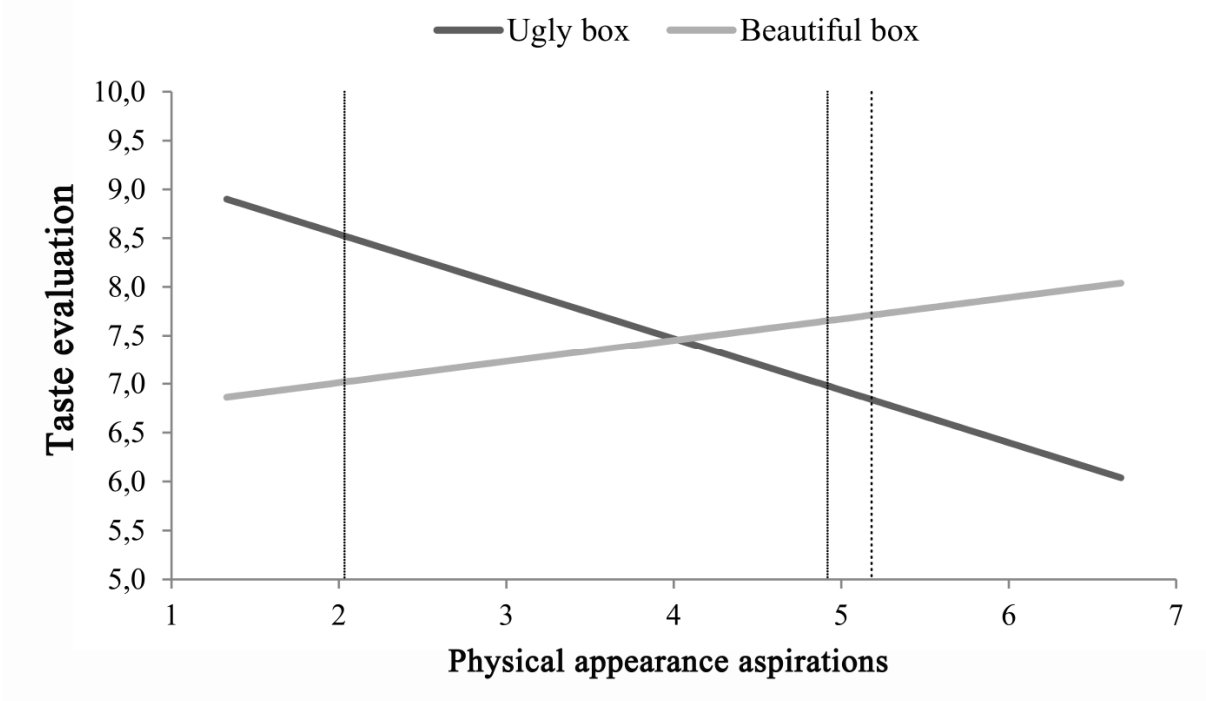
Next, participants were told that they would evaluate a randomly determined brand from a set of two concealed brands of chocolates. They were to follow an experimenter to a table, set up in a closed space in the lab. The table held four boxes of brand A and four boxes of brand B, with one box of each brand open (see Appendix A). The chocolates were actually identical but were presented in either an attractive or a less attractive box. Because the participants could directly compare the package designs of both boxes, they should have easily recognized their assigned box as either uglier or better looking than the other box. Both boxes were full for each participant, and we counterbalanced the position (left vs. right) of the attractive and unattractive boxes. After tasting one chocolate, the participants continued the questionnaire on the computer, by indicating how delicious the chocolate was on a 10-point scale (0 = "very bad," 10 = "very delicious").

3.2 Results and discussion

Physical appearance aspirations had no main effect on the evaluation of the chocolates ($F(1,88) = .92$, $p = .34$), nor did the taste evaluations of the chocolates differ when the box was attractive ($M = 7.57$) or unattractive ($M = 7.18$; $F(1,88) = 1.02$, $p = .32$). However, we found a significant effect of the interaction between physical appearance aspirations and box type on taste evaluation ($F(1,88) = 5.32$, $p = .02$). Specifically, people who aspired to an

attractive appearance (mean + 1 SD) evaluated the same chocolates as better when the box of chocolates was attractive (M = 7.83) rather than unattractive (M = 6.55; $t(1,88) = 2.34$, p = .02). In contrast, people who do not aspire to beauty (mean – 1 SD) did not evaluate the chocolates differently, whether they were in an attractive (M = 7.31) or an unattractive (M = 7.81; $t(88) = -.93$, p = .36) box. To determine at which point the simple effects of the type of box become significant, we ran a floodlight analysis (Spiller, Fitzsimons, Lynch, & Mcclelland, 2013), using the Johnson-Neyman technique (Hayes, 2012). Taste evaluations of the chocolates improved for the attractive compared with the unattractive box when people scored at least 5.18 on the seven-point physical appearance aspiration scale. As Figure 1 illustrates, the more people strived to look good, the less they liked the chocolates in the unattractive box. In summary, people who want an appealing appearance were more likely to derive quality information from the package appearance.

Figure 1. Effect of physical appearance aspirations on taste evaluation



Notes: The dashed line shows the region of significant at $p < .05$; two other lines show the region of significance at $p < .10$. Mean – 1SD = 3.36; Mean + 1SD = 5.75.

According to this first study, physical appearance aspirations affect actual taste evaluations. Consumers who want to be physically attractive enjoy the same chocolates more (less) when the packaging is appealing (unappealing). In line with our proposed framework, we found that people who highly value their own beauty also value products with appealing packages more. We suggest that these consumers are more likely to derive quality information

from product packages. Study 2 tests these assumptions more directly, to help uncover the process underlying the effect of physical appearance aspirations on product evaluations. Moreover, we investigate the alternative explanation that consumers who want to be physically attractive have a stronger preference for products with attractive packages simply because they value the visual appeal of products more. In doing so, we aim to demonstrate that the use of such a beauty-is-good heuristic to evaluate simple consumer products cannot be fully explained by individual differences in the centrality of visual product aesthetics (Bloch et al., 2003). Study 2 thus tests two viable explanations for the current findings: 1) people who want to be beautiful prefer products with an appealing package because they have a general belief that beautiful products are better products, 2) people who desire to be physically attractive prefer attractive products because they appreciate the visual aesthetics of products more.

4. STUDY 2: WHY PHYSICAL APPEARANCE ASPIRATIONS AFFECT PRODUCT EVALUATIONS

4.1 Participants, materials, and procedure

For this online study, we recruited 82 participants (24 men; mean age = 34.13 years, *SD* = 16.15). We tested the influence of product packages on purchase intentions for a fast-moving consumer good (FMCG) in a category with widely varying quality and package designs. We focused on a FMCG because consumers typically do not show off these products but instead use them in private; therefore, it seemed unlikely that consumers would select the attractive product because they thought product attractiveness could help signal their own attractiveness. Accordingly, we designed two bottles of shampoo, one with an attractive package and one with an unattractive package (Appendix B). The package designs and brand names were fictional, so no prior consumer experiences were possible. Both bottles contained the same amount of shampoo, and green was the main color of the package designs. Size and color preferences thus could not influence participants' intentions to buy. However, the graphical design of the nice-looking package was clearly superior. A pretest confirmed the difference in the attractiveness of the two packages ($M_{attractive}$ = 67.54, $M_{unattractive}$ = 32.82, 100-point rating scale; $t(112) = 14.01$, $p < .001$).

Similar to Study 1, we first administered the Dutch Aspiration Index (Kasser & Ryan, 1996; Vansteenkiste et al., 2006) to assess participants' physical appearance aspirations (Cronbach's α = .76 ; *M* = 4.14, *SD* = 1.12). Next, we presented two alternative shampoo bottles and asked participants to indicate which product they would rather buy, by moving a 100-point slider bar toward their favored product. The position of the product packages was counterbalanced. In addition, we asked them to indicate on a 7-point Likert scale to what extent they agreed with five statements (Cronbach's α = .81, *M* = 3.65, *SD* = .63, see Figure 2 for distribution) that suggested a general belief that beautiful products are better products (e.g., "A product with an ugly package design is mostly an inferior product"; see Appendix C). Finally, we included the centrality of visual product aesthetics (CVPA) scale (Bloch et al., 2003) to assess the extent to which they appreciate beautiful products in general (Cronbach's α = .86; e.g., "A product's design is a source of pleasure for me", see Appendix D").

Figure 2. Distribution of the beauty-is-good for products scale

Notes: A cumulative percentage of 64.6 scored below the midpoint of 4 (out of 7). Normality is assumed with skewness and kurtosis of -.41 (SE = .27) and -.60 (SE = .53) respectively.

4.2 Results and discussion

We found a significant effect of physical appearance aspirations on the intention to buy the product with the attractive package (*B* = 6.46, *SE* = 2.31; *F*(1,82) = 7.82, *p* = .006). Moreover, physical appearance aspirations related positively to the endorsement of a beauty-

is-good heuristic for products (r = .32, p = .003). In line with our expectation that consumers who desire a nice physical appearance would be more likely to assign quality to products with attractive packages, we found that this beauty-is-good for products scale effectively predicted the intention to buy the product with the appealing package (B = 11.68, SE = 4.13; $F(1,82)$ = 7.98, p = .006).

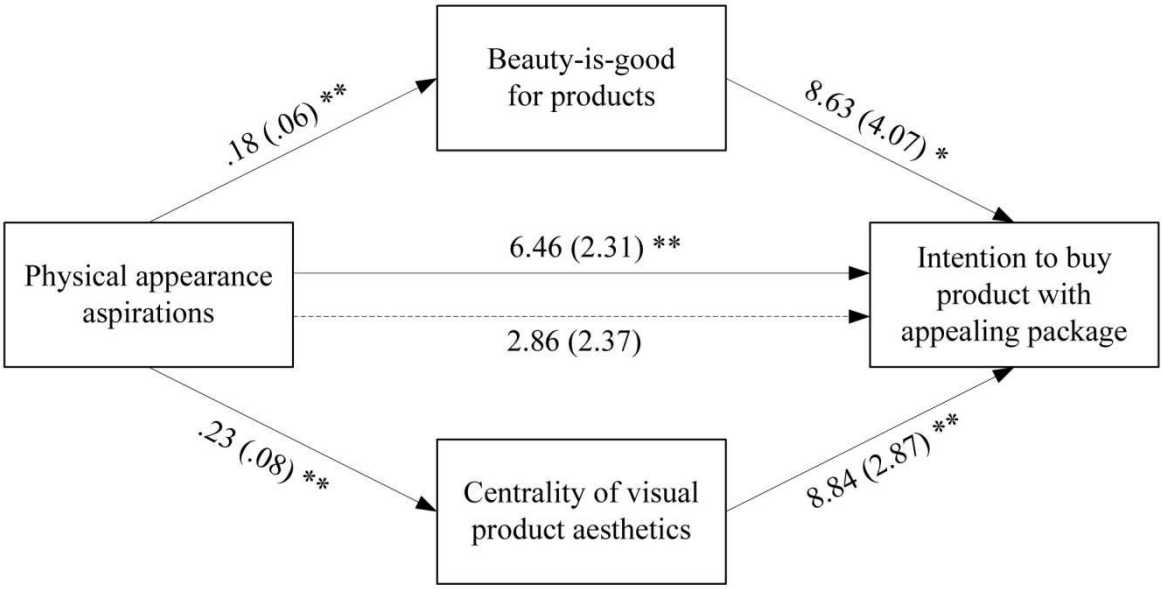
In addition, we tested whether people who believe that products with attractive packages are generally better products also appreciate the visual appeal of products more. We did not find a positive correlation between the beauty-is-good for products scale and CVPA (r = .11, p = .31). In line with previous research (Orth et al., 2010), individual differences in CVPA did not result in a stronger belief that beautiful products had higher quality standards. As such, we can exclude the alternative explanation that consumers who generally infer quality from package design buy beautiful packages because they simply appreciate the visual appeal of products more. However, we did find that CVPA significantly predicts the intention to buy the product with the appealing package (B = 10.61, SE = 2.85; $F(1,82)$ = 13.88, p < .001). The more importance people generally attach to the visual appeal of products, the stronger their preference for appealing packages. Moreover, the results showed a significant positive correlation between physical appearance aspirations and CVPA (r = .30, p = .007).

Regarding the question of whether the effect of physical appearance aspirations on purchase intentions for appealing products can be explained by the beauty-is-good heuristic for products on the one hand, and CVPA on the other hand, we estimated a path model (see Figure 3) that fits the data extremely well: χ^2/df = .03, p = .86, root mean square error of approximation < .001, and normed fit index = .999. The model showed that both the use of the beauty-is-good heuristic for products and CVPA mediated the effects of appearance concerns on intentions to buy the appealing product (p = .048). A bias-corrected bootstrap 95% confidence interval (CI) [.09, 4.31] indicated that physical appearance aspirations exerted a significant, indirect effect on purchase intentions through the beauty-is-good heuristic (Sobel test: Z = 1.679, p = .09). In addition, we found a significant indirect effect of physical appearance aspirations on purchase intentions through CVPA (95% CI [.54, 4.56]; Sobel test: Z = 2.051, p = .045). People who want an appealing appearance buy nice-looking products because they assign more quality to beautiful products, *and* because they greatly appreciate appealing product designs in general.

These results replicate the finding from our first study that physical appearance aspirations affect product evaluations. In addition to actual taste evaluations, physical appearance aspirations also influenced purchase intentions toward a basic FMCG with an appealing

package design. People who want an appealing appearance for themselves are more likely to buy products with an appealing package. They not only assign higher quality to beautiful products, but also appreciate visual product aesthetics more. However, our estimated model does not contain a path from CVPA to quality inferences, because including this path did not significantly improve model fit. That is, individual differences in CVPA did not result in a stronger belief that beautiful products had higher quality standards. In sum, we demonstrated that consumers who want to have an appealing appearance buy aesthetically appealing packages because they infer quality from beautiful package designs. Moreover, we demonstrated that CVPA cannot explain this finding as consumers who generally appreciate product design do not have a stronger tendency to infer quality from appealing packages.

Figure 3. Mediation model: Effect of physical appearance aspirations on purchase intentions toward the appealing product package, mediated by the beauty-is-good heuristic and CVPA



Notes: The values in the figure are unstandardized coefficients, with standard errors in parentheses. The solid lines indicate the total effect of the independent variable on the dependent variable; the dashed line indicates the direct effect. *$p < .05$. **$p < .01$.

5. STUDY 3: GENERALIZING BEAUTY IS GOOD

So far, we demonstrated that people who want to be physically attractive are more likely to buy attractive products because they believe that attractive products are in general better products. According to our framework, we suggest that some people strive to be beautiful

themselves because they believe that being beautiful yields several positive outcomes. Moreover, we expect that consumers who believe that being beautiful is good for *people* may as well believe that beautiful products should be good *products*. In this study, we test whether people who want to be physically attractive expect higher quality from attractive products because they have generalized the idea that beauty is inherently good.

5.1 Participants, materials, and procedure

We collected a total of 131 responses (33 men; mean age = 33.14 years, *SD* = 15.17) for this online study. As in the previous study, we asked them to indicate on a seven-point Likert scale to what extent they believe that beautiful products are better products overall with four items (Cronbach's α = .80, *M* = 3.31, *SD* = 1.11). In addition, we asked them to indicate on a 100-point slider bar to what extent they believe that the more a company invests in the package design of a product, the more (less) that company invests in the quality of a product (*M* = 57.95, *SD* = 16.77). Moreover, we assessed to what extent people use the "what is beautiful is good" stereotype (Dion et al., 1972) to evaluate other people. Participants had to indicate on a seven-point Likert to what extent they agreed with eight items (Cronbach's α = .82, *M* = 5.24, *SD* = .72) suggesting that being beautiful yields several positive outcomes (e.g., "Beautiful people often get more chances in the job market than ugly people"; see Appendix E). Half of the participants answered first to the questions concerning beauty-is-good for products, while the other half of the participants received the questions pertaining to beauty-is-good for people first. Finally, all participants indicated how important the six life goals of the Aspiration Index (Kasser & Ryan, 1996; Vansteenkiste et al., 2006), including physical appearance aspiration, are to them on a seven-point scale (1 = "totally unimportant," 7 = "very important"). Three out of eighteen items assessed participants' physical appearance aspirations (Cronbach's α = .68; *M* = 4.33, *SD* = 1.04).

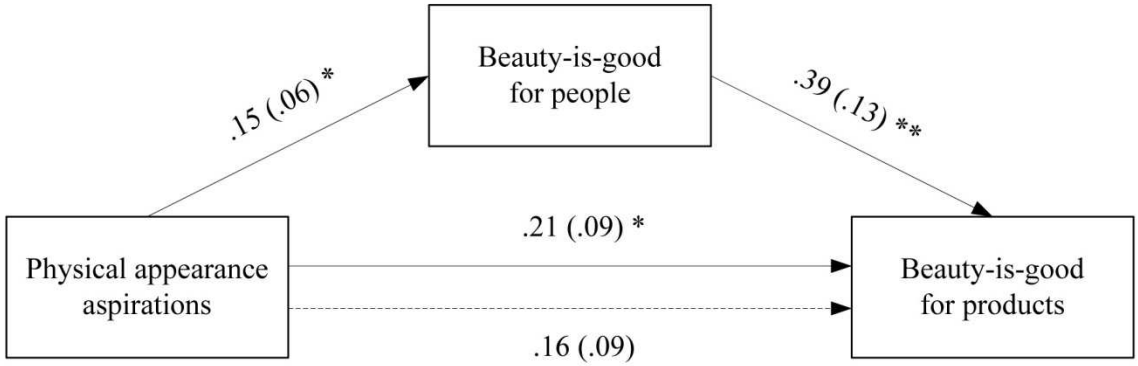
5.2 Results and discussion

In line with our expectations, we found that the more people aspire to be physically attractive, the more they believe that being beautiful yields several positive outcomes (r = .21, p = .014). Moreover, the results confirmed that the more they believe that being beautiful yields several positive outcomes, the more they are convinced that attractive products are

generally better products (r = .28, p = .001). We also replicated that the stronger people's desire to be physically attractive, the stronger their belief that attractive products are generally better products (r = .20, p = .021). Moreover, people who scored high on this beauty-is-good for products scale, also agreed more with the naïve theory that the more companies invest in packaging, the more they invest in product quality as well (r = .40, p < .001).

We proposed that people may use this beauty-is-good heuristic when evaluating products because they have generalized the idea that beauty is inherently good. Mediation analysis confirmed that participants' belief in the "what is beautiful is good" stereotype for people mediates the effect of appearance concerns on the use of the beauty-is-good heuristic to evaluate consumer products (see Figure 4). A bias-corrected bootstrap 95% confidence interval (CI) [.009, .16] indicated that physical appearance aspirations exerted a significant, indirect effect on the beauty-is-good heuristic for products through the beauty-is-good heuristic for people (p = .013).

Figure 4. Mediation model: Effect of physical appearance aspirations on beauty-is-good for products, mediated by beauty-is-good for people



Notes: The values in the figure are unstandardized coefficients, with standard errors in parentheses. The solid lines indicate the total effect of the independent variable on the dependent variable; the dashed line indicates the direct effect. *p < .05. **p < .01.

In addition, we tested whether this beauty-is-good for people also mediated the marginally significant relationship between physical appearance aspirations and the agreement to the naïve theory that the more companies invest in packaging, the more they invest in product quality as well (r = .17, p = .053). We found a positive relationship between the beauty-is-good for people and the extent to which people agreed with this naïve theory (B = 5.12, SE = 2.03; t(130) = 1.41, p = .013). The total effect of physical appearance aspirations on the

beauty-is-good for people was marginally significant (B = 2.27, SE = 1.39; t(130) = 1.96, p = .053), while the direct effect of physical appearance aspirations was not significant anymore (B = 1.97, SE = 1.40; t(130) = 1.41, p = .16). Mediation analysis confirmed that participants' use of the beauty-is-good heuristic for people mediates the effect of physical appearance aspirations on their naïve belief that companies who invest in packaging, also invest in product quality. A bias-corrected bootstrap 95% confidence interval (CI) [.098, 2.08] indicated that physical appearance aspirations exerted a significant, indirect effect on the lay belief that products with appealing packages are better through the beauty-is-good heuristic for people (p = .014).

Taken together, these results confirm our hypotheses. People who want to be physically attractive appear to use a beauty-is-good inference rule to evaluate other people, and, consequently, apply a beauty-is-good heuristic to evaluate products. As such, the use of a beauty-is-good heuristic to evaluate simple consumer products seems an overgeneralization of the beauty-is-good for people hypothesis and thus points to the existence of a general idea that beauty is inherently good.

6. STUDY 4: MODERATING EFFECT OF QUALITY INFORMATION

Finally, we argue that the preference for attractive products among consumers who want an appealing appearance should hold particularly in the absence of objective quality information. In the presence of objective quality information, they no longer need to infer quality, so they should be less likely to prefer attractive products. In line with the negative aesthetic effect proposed by Hoegg, Alba, and Dahl (2010), we expect that consumers with physical appearance aspirations prefer the unattractive product over the attractive product if its quality is clearly superior. In this study, we investigate whether quality information eliminates the effect of physical appearance aspirations on preference for products with attractive packages.

6.1 Participants, materials, and procedure

For this online study, 104 participants (32 men; mean age = 29.67 years, SD = 14.45) reviewed two alternative product versions in four basic product categories: laundry detergent,

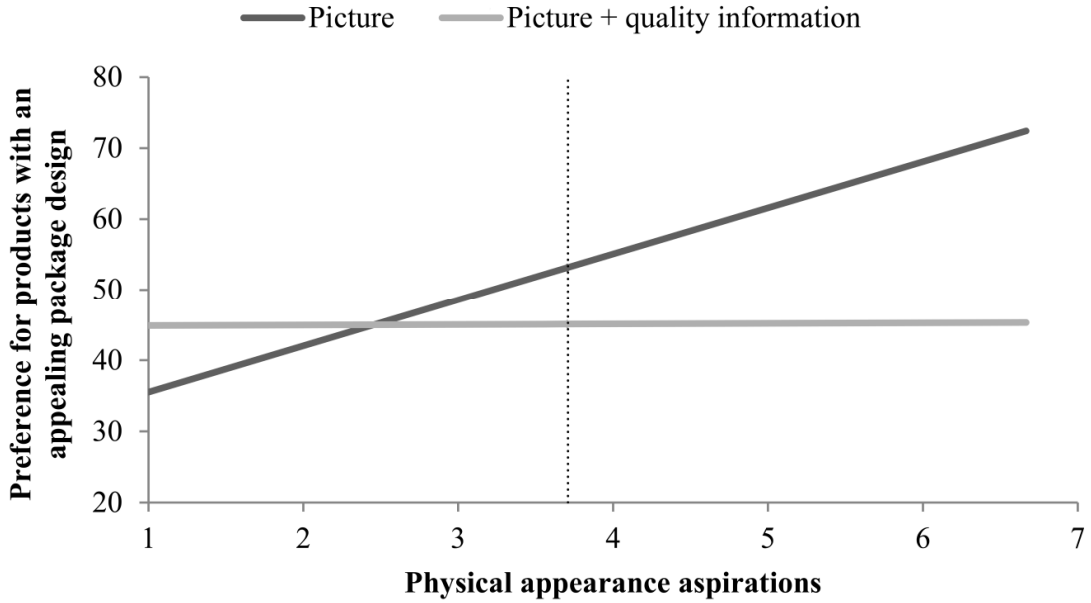
orange juice, cereal, and paper towels. Again, using these relatively low-priced FMCGs should reduce consumers' involvement and other possible purchase drivers, such as status-seeking. The products were unknown to the participants, and the brand names were fictitious, with no obvious connotations. The manipulation thus focused on the visual appeal of the product packages: One product version had an attractive package design, and the other had an unattractive package design. To distinguish these product versions, we used more vivid colors in the designs of the appealing packages, in accordance with previous research that highlights the importance of colors for determining the visual attractiveness of product packages (Labrecque, Patrick, & Milne, 2013). We also tested the visual appeal of the products with a 100-point scale, ranging from unattractive to attractive. Across all categories, the package designs differed significantly in their attractiveness—laundry detergent ($M_{attractive}$ = 66.16, $M_{unattractive}$ = 28.87; t(121) = 16.07), orange juice ($M_{attractive}$ = 67.74, $M_{unattractive}$ = 40.94; t(121) = 9.41), cereal ($M_{attractive}$ = 63.66, $M_{unattractive}$ = 30.67; t(121) = 12.73), and paper towels ($M_{attractive}$ = 58.42, $M_{unattractive}$ = 37.65; t(121) = 7.19)—all p-values below .001.

Moreover, we told half of the participants that the products had been tested by a well-known national consumer organization that specializes in evaluating consumer products. Using its expertise, this consumer organization had assigned each product a rating on a 10-point scale, and the unattractive products scored between one and two points higher than the attractive alternatives. The proposed quality differences between product versions were not substantial, and the lowest quality score was 6.5, such that every product version offered acceptable quality. In addition to the consumer report points, we added information about two or three product features related to product quality. For example, the laundry detergent with the unattractive package provided a greater number of washes for the same amount of detergent, and the orange juice with the attractive package contained more calories. In summary, it should have been clear to participants that the products with the unattractive packages offered superior product quality compared with products with attractive packages. Finally, for each product category, participants indicated which version appealed most to them by moving a 100-point slider bar toward their favorite product. The positioning of the attractive and unattractive packages was counterbalanced (left and right). To assess participants' physical appearance aspirations, we administered the Aspiration Index (Kasser & Ryan, 1996; Vansteenkiste et al., 2006) with a seven-point Likert scale (Cronbach's α = .81; M = 4.23, SD = 1.26).

6.2 Results and discussion

Consistent with our previous studies, we found a significant main effect ($F(1,104) = 4.58$, $p = .03$) of physical appearance aspirations on the preference for products with appealing packages (Cronbach's $\alpha = .64$; $M = 50.49$, $SD = 20.76$). The more people felt motivated to pursue an appealing physical appearance, the more they were attracted to products with an attractive package. Moreover, we found a significant interaction effect between participants' physical appearance aspirations and the availability of quality information ($F(1,104) = 4.64$, $p = .03$; see Figure 5). In the condition that provided respondents with only a picture of the products, we replicated the findings of the previous studies: The more people aspired to be physically attractive, the stronger their preference for products with an attractive package ($r = .46$, N = 51, $p = .001$). However, in the condition with both pictures and quality information, the effect of physical appearance aspirations disappeared ($r = .004$, N = 53, $p = .98$). In line with our expectations, physical appearance aspirations had no influence when quality information was available. A floodlight analysis (Spiller et al., 2013) and the Johnson-Neyman technique (Hayes, 2012) also revealed that the preference for products with an attractive package was significantly higher in the condition with no quality information than in the version with quality information if participants scored 3.70 (seven-point scale) or higher on their physical appearance aspirations. Thus, people who want to look good themselves express stronger preferences for attractive products, because they infer quality from appealing packages. When they receive objective quality information, they no longer need to derive quality information from package appeal. In the presence of information that suggests that the unattractive product is of superior quality, they no longer prefer products with attractive packages. Instead, when the attractive products are of lesser quality, all participants are more inclined to choose the unattractive products of superior quality, irrespective of their physical appearance aspirations.

Figure 5. Interaction effect between physical appearance aspirations and quality information on preference for attractive packages



Notes: The dashed line shows the region of significant at $p < .05$. Mean – 1SD = 2.79; Mean + 1SD = 5.49.

In real life, however, it may not be possible for consumers to count on objective quality information, such as *Consumer Reports*, to gauge the quality of FMCG's. Therefore, explicitly providing quality information about, for example, orange juice may have seemed somewhat odd, and may even have triggered their preference for the highest quality product alternative. However, we tried to eliminate possible demand effects by limiting the quality differences between the attractive and the unattractive alternative. The results showed that consumers did not have a strong preference for the highest quality option, but only slightly preferred the highest quality product when quality information was salient. More importantly, in the condition without quality information, we replicated our previous finding that consumers' physical appearance aspirations do result in a stronger preference for FMCG's with appealing packages.

7. GENERAL DISCUSSION

We started this paper with a simple question: are consumers who value being physically attractive more attracted to beautiful products than consumers who attach less importance to their physical attractiveness? Presumably, most people gave an affirmative reply, making this question somewhat trivial. However, if we would ask them why, people may think of several reasons pertaining to the congruence between the product and their desired identity, or the pleasure one derives from surrounding oneself with beautiful things. In the current paper, we offer a completely different explanation. We demonstrate that consumers who desire physical attractiveness buy attractive products because they overgeneralize the idea that beauty is inherently good and evaluate consumer products according to this beauty-is-good heuristic. As such, we offer a surprising answer to a more specific and less obvious question: are consumers who value physical attractiveness more likely to buy attractively packaged, low-involvement consumer products that have no bearing at all on their own attractiveness and are mainly used in a private setting?

Four studies demonstrate that consumers, who care a lot about their physical appeal, are indeed more likely to buy low-involvement products with an appealing package. Study 1 shows that consumers with strong physical appearance aspirations like chocolates better (less) when they are presented in an attractive (unattractive) box of chocolates. Consumers' physical appearance aspirations thus influence real taste evaluations based on the appeal of the packages. Study 2 demonstrates that consumers who value physical attractiveness have a stronger tendency to buy attractively packaged FMCG's because they 1) have a general belief that products with an appealing package are better products, and 2) strongly appreciate the visual appeal of products in general (CVPA). Moreover, our results show, in line with previous research (Orth et al., 2010), that consumers who attach more importance to visual product aesthetics do not have a stronger belief that beautiful products are better products. As such, we show that consumers with physical appearance aspiration do not apply this beauty-is-good heuristic simply because they appreciate the visual appeal of well-designed product packages more.

Study 3 reveals that consumers who aspire to physical attractiveness think that being beautiful is associated with several positive outcomes, and, consequently, overgeneralize the inference rule that beauty-is-good to evaluate basic consumer products. Finally, Study 4 confirms that consumers who value physical attractiveness only apply this beauty-is-good heuristic when they have to make inferences about the quality of products. Making objective

quality information salient eliminates the effect of physical appearance aspirations on consumers' preference for products with appealing packages. However, because product quality is mostly unobservable prior to consumption, and consumers often lack the time, motivation, or cognitive capacity to evaluate products thoroughly, it remains highly relevant to understand why consumers infer quality from product packages.

We demonstrate that consumers infer higher quality from products with appealing designs because they overgeneralize the "what is beautiful is good" hypothesis (Dion et al., 1972). However, one may wonder why consumers who aspire to beauty assign more positive qualities to beautiful people in the first place. On the one hand, consumers with physical appearance aspirations may believe that being beautiful yields several positive outcomes because they want to justify their pursuit of physical appeal. Accordingly, our proposed path model in Study 3 predicts a positive causal relationship between physical appearance aspirations and the belief that beauty-is-good for people. Moreover, we found that this belief in beauty-is-good for people significantly (p = .013) mediates the effect of physical appearance aspirations on consumers' belief in beauty-is-good for products. On the other hand, consumers who derive positive qualities from one's physical appearance, may pursue being beautiful in order to attain these positive outcomes. Reversing the causality between physical appearance aspirations and the "what is beautiful is good" stereotype around results as well in a significant mediation model (p = .047) in which the pursuit of physical appearance explains the positive relationship between consumers' belief in the beauty-is-good for people and the beauty-is-good for products. As such, it seems that the association between physical appearance aspirations and the belief in the "what is beautiful is good" stereotype for people may run both ways. We thus cannot conclude whether consumers with physical appearance aspirations assign positive qualities to beautiful people because they try to justify their physical appearance pursuit, or whether they pursue beauty because they actually believe that being beautiful leads to several positive outcomes.

Irrespective of the direction of this association, however, we did find that consumers who aspire to physical appearance apply this beauty-is-good heuristic to evaluate basic consumer products. We demonstrated this effect for a variety of basic, low-involvement products including chocolates, shampoo, orange juice, cereal, laundry detergent, and paper towels. While most of these products have no bearing at all on consumers' attractiveness, some people may believe that shampoo can enhance their physical appeal. However, as a nice-looking bottle of shampoo is definitely not directly related to an appealing appearance, it seems rather unlikely that consumers who strongly value attractiveness prefer the attractive

bottle of shampoo to express or enhance their self-image. We suggest that they may be more likely to bolster their self-image through other personal care products, such as mascara and other cosmetics that are more related to one's self-image. Arguably, consumers who highly value their attractiveness may be more likely to buy these personal care products, making it even more important to develop an appealing package. Taken together, consumers who want to be physically attractive may buy personal care products with attractive packages not only because they expect higher quality, or appreciate product design in general, but may also do so to express their identity or to enhance their sense of self. Future research may investigate whether the impact of appealing packages is indeed stronger for products that have a bearing on consumers' physical attractiveness.

For other type of products that have no bearing on one's attractiveness, but are strongly related to one's identity or highly visible to others, consumers may as well rely strongly on their package design to make a purchase decision. For example, some consumers may be more likely to buy headphones with an appealing package. Not only the packaging, but the product design as a whole may be highly important for such high-involvement products. Previous research has demonstrated that people do count on the design of products to assess the quality of products (e.g., Dawar & Parker, 1994). Future research could be conducted to find out whether consumers who strongly pursue attractiveness are also more likely to buy high-involvement products with an appealing product design because they derive higher quality from attractive products.

The current findings may have far-reaching implications for the daily lives of consumers. We demonstrated that consumers who value their attractiveness like chocolates better when they are presented in an attractive box compared to a plain box. Accordingly, consumers who pursue physical appeal may also evaluate take-out food more positively when it is packed in a nice-looking bag compared to a traditional brown bag. Future research could investigate whether the influence of visual appeal applies in other consumer contexts as well. For instance, consumers who highly value attractiveness may be more susceptible to visually appealing advertisements because they expect a higher quality of the advertised product. While building up quality expectations may have a positive effect on consumers' product evaluations, it sometimes may backfire. Indeed, consumers who value their attractiveness may be disappointed when the product itself does not meet their high quality expectations. Therefore, it is highly important to understand how packaging and visual appeal in general affects quality expectations, especially for products that consumers with physical appearance

aspirations might buy, as they are more likely to apply such a beauty-is-good heuristic to evaluate products.

Moreover, we demonstrated that consumers who value attractiveness use this beauty-is-good heuristic not only to evaluate products, but also to evaluate other people. This finding may as well have important implications in a consumer context. Consumers with physical appearance aspirations may like several products or services better when they are created, provided or endorsed by a beautiful person. For example, consumers who want to be attractive may like a book better when it is written by someone who simply looks good. Or, consumers who want to be attractive may even give better taste evaluations when their food is served by a nice-looking waiter or waitress. In addition, our findings may have implications in other domains as well. For example, people who want to be physically attractive may be more likely to choose an attractive mate because they assign more positive qualities to beautiful people. Overgeneralizing the idea that beauty is inherently good may result in suboptimal choices in important life domains, and may thus have a significant influence on people's daily lives. Therefore, future research should be conducted to arrive at a better understanding of the link between visual appeal on the one hand and quality inferences on the other hand.

While the present research is limited to the effects of consumers' physical appearance aspirations on the intention to buy low-involvement products with attractive packages, we contribute to several lines of research. First, we add to research on the impact of product design on consumer choice. We demonstrated that package design affects consumers' quality expectations, and consequently influences which products consumers tend to buy. Moreover, we identified consumers' physical appearance aspirations as an individual difference that determines reactions to products with visually appealing packages. Second, we contribute to self-determination theory (e.g., Ryan & Deci, 2000) and the effects of extrinsic goals in particular. While prior research has mainly focused on the effects of wealth aspirations (i.e. on materialism) as an extrinsic goal, the current paper investigates the consequences of the pursuit of physical appearance. In contrast with most research on extrinsic goal pursuit, we do not investigate possible psychological outcomes related to well-being (e.g., Sheldon et al., 2004), but we focus on how physical appearance aspirations affect consumers' responses to products. Third, we contribute to research on naïve beliefs regarding market mechanisms and product quality. Previous research has demonstrated that people use naïve theories as an inferential basis to assess the quality of products (Deval et al., 2013; Kardes et al., 2004). We demonstrate that, in addition to cues such as price, consumers may also count on package design as a quality signal. Moreover, we add to this research on naïve beliefs regarding

market mechanisms and product quality that an individual difference can predict which specific lay belief is chronically used in product evaluation.

Taken together, we may conclude that some people do believe they can judge books by their covers. Beauty is a good thing after all—at least for people who want to look good themselves.

8. APPENDICES

Appendix A

Study 1 product presentations

Notes: “Merk A” means “Brand A”, and “Merk B” means “Brand B”.

Appendix B

Study 2 product presentations

Attractive package

Unattractive package

Appendix C

Scale items of the beauty-is-good for products

1. One can deduce the quality of a product from its package design.
2. A product with an ugly package design is mostly an inferior product.
3. Products that look good also have the highest quality.
4. If I must choose between two products, I always choose the product with the most beautiful package design.
5. The package design of a product doesn't say anything about its quality.*

*Reverse-scored item.

Appendix D

The centrality of visual product aesthetics scale (Bloch, Brunel, & Arnold, 2003)

1. Owning products that have superior designs makes me feel good about myself.
2. I enjoy seeing displays of products that have superior designs.
3. A product's design is a source of pleasure for me.
4. Beautiful product designs make our world a better place to live.
5. Being able to see subtle differences in product designs is one skill that I have developed over time.
6. I see things in a product's design that other people tend to pass over.
7. I have the ability to imagine how a product will fit in with designs of other things I already own.
8. I have a pretty good idea of what makes one product look better than its competitors.
9. Sometimes the way a product looks seems to reach out and grab me.
10. If a product's design really "speaks" to me, I feel that I must buy it.
11. When I see a product that has a really great design, I feel a strong urge to buy it.

Appendix E

Scale items of the beauty-is-good for people

1. People who look good have generally more friends than people who do not look that good.
2. Beautiful people often get more chances in the job market than ugly people.
3. In general, beautiful people get often more done from others.
4. Attractive people frequently enjoy benefits.
5. The greater one's attractiveness, the easier one can persuade others of something.
6. The more attractive one is, the more attention one gets.
7. Attractive people often have more attractive partners compared to less attractive people.
8. The more attractive, the more self-confident one is.

CHAPTER

5

MORE THAN MEETS THE EYE: THE RELATION BETWEEN EXTRINSIC VERSUS INTRINSIC GOAL PURSUIT, MATE PREFERENCES, AND ROMANTIC WELL-BEING

CHAPTER V: MORE THAN MEETS THE EYE: THE RELATION BETWEEN EXTRINSIC VERSUS INTRINSIC GOAL PURSUIT, MATE PREFERENCES, AND ROMANTIC WELL-BEING

Self-determination theory proposes that a key distinction in human motivation involves the difference between intrinsic and extrinsic goals (Deci & Ryan, 1985; Sheldon, Ryan, Deci, & Kasser, 2004). The attainment of intrinsic goals such as personal growth, close relationships fostering, or community involvement, is intrinsically rewarding because it directly satisfies one of three innate psychological needs - competence, relatedness, and autonomy (Kasser & Ryan, 1993, 1996). In contrast, extrinsic goals, such as wealth, image, or fame, do not directly satisfy a psychological need, but rather do so indirectly by the attainment of positive feedback from others (Deci & Ryan, 2000; Sheldon et al., 2004). Accordingly, intrinsic motivations lead to behavior that is satisfying in itself, whereas extrinsic motivations result in behavior that is instrumental to reach outcomes extrinsic to the behavior itself. An extensive body of research has demonstrated that a strong attachment to extrinsic relative to intrinsic goals is associated with diminished well-being, as indicated by lower health, lower self-esteem and self-actualization, and more feelings of anxiety or depression (Kasser & Ahuvia, 2002; Kasser & Ryan, 1993, 1996; Ryan & Deci, 2000; Sheldon & Kasser, 2008; Williams, Cox, Hedberg, & Deci, 2000).

Self-determination researchers have not only studied the influence of goal pursuit on individual well-being, but also on relationship well-being. For instance, Kasser and Ryan (2001) showed that a relative focus on extrinsic goals is associated with a lower quality of relationships with both friends and romantic partners. In the context of romantic relationships, research has focused both on motivational orientations towards relationships, and on how a romantic partner is able to fulfill one's psychological needs (La Guardia & Patrick, 2008; Patrick, Knee, Canevello, & Lonsbary, 2007). Having more intrinsic reasons for being in a relationship contributes to the development and maintenance of people's relationship quality (Blais, Sabourin, Boucher, & Vallerand, 1990; Patrick et al., 2007). Moreover, researchers have shown that fulfillment of autonomy, competence, and relatedness within one's relationship is positively related to both individual and relationship well-being (La Guardia, Ryan, Couchman, & Deci, 2000; Patrick et al., 2007). Accordingly, Brunstein, Dangelmayer

and Schultheiss (1996) demonstrated that the support one receives from an intimate partner to attain personal and relationship goals contributes to one's relationship satisfaction. In sum, research has largely demonstrated how goal pursuit can affect relationship well-being. Nevertheless, surprisingly little research has investigated whether goal pursuit may influence relationship well-being through the selection of a suitable mate. Obviously, the selection of a life partner may have a tremendous influence on how happy people will be in their relationship. Moreover, being happy in one's relationship is an important source of happiness overall (Dush & Amato, 2005; Reis, Collins, & Berscheid, 2000). Demir (2007) has demonstrated that relationship quality among dating youngsters contributes to happiness beyond the influence of personality, which is one of the major predictors of happiness. Mate selection could thus be an important determinant of both relationship and individual well-being. Therefore, current paper investigates whether differences in goal pursuit are associated with differences in the qualities people value in a romantic partner.

Specifically, self-determination theory states that people with a strong desire to attain extrinsic goals are motivated to be praised by others (e.g., Sheldon, Ryan, Deci, & Kasser, 2004). While intrinsically oriented people are typically motivated for autonomous reasons, extrinsically oriented people perform particular behaviors for controlled reasons. Extrinsic goal pursuit could be instigated by feelings of pressure or coercion, but could also be inspired by the desire to obtain rewards or praise from other people (Sheldon et al., 2004). As physical attractiveness is a highly desirable partner characteristic (e.g., Buss & Barnes, 1986; Furnham, 2009; Regan, Levin, Sprecher, Christopher, & Gate, 2000) that is visible to other people, having an attractive partner might be instrumental behavior to gain positive feedback from other people. Therefore, we expect that extrinsically oriented people might be more likely to select a partner with desirable external qualities (i.e., attractive appearance). In contrast, intrinsically oriented people are expected to value the internal qualities of a partner (i.e., abilities and personality characteristics) more. In a next step, we investigate whether relationship well-being is affected by these specific partner characteristics.

1. **STUDY 1**

In Study 1, we investigate how goal pursuit affects which romantic partner men prefer. Men were confronted with mock dating profiles containing a picture of the candidate along with verbal description, including a mention of occupation. While the picture allowed

assessing the attractiveness of the candidate, the occupation allowed assessing her intelligence. We expect that extrinsically motivated men might focus more on the physical appearance of a partner, whereas intelligence may be valued more by intrinsically motivated men.

1.1 Participants

One hundred and fifteen male students participated in this study in return for a participation fee. As the aim of current study was to investigate which woman men would select as a possible long-term partner, we asked participants' sexual orientation. Gay participants were excluded from the analyses. This resulted in a sample of 112 male participants, varying in age from 18 to 34 (M = 21.31, SD = 2.30).

1.2 Procedure and design

To assess participants' orientation towards intrinsic versus extrinsic goals, we used the 18-item Dutch version of the Aspiration Index developed by Kasser and Ryan (1996; translated by Vansteenkiste, Duriez, Simons, & Soenens, 2006). Participants had to indicate for six life goals how important they are to them on a 7-point scale (1 = totally unimportant, 7 = very important). The importance attached to each life goal was measured through three items. The average importance score for life goals concerning personal growth, close relationships, and community involvement represent intrinsic goals (Cronbach's α = .82). The importance scores of the life goals concerning wealth, image, and fame are averaged as extrinsic goals (Cronbach's α = .80).

After the participants were asked to imagine that they were single and open to a relationship, we presented them with eight online dating profiles. These profiles contained standard information such as age, height, weight, and zodiac sign to make the profiles realistic. Although age, height, and weight varied somewhat, the different candidates belonged to the same age, height, and weight category such that these variables would not influence participants' partner preference. More importantly, the dating profiles contained a picture (attractive versus average appearance) and the women's current occupation (with high versus low required level of intelligence). To distinguish between attractive versus average-looking women, we conducted a pretest in which male participants (n = 26) rated both looks

and sex appeal of thirty women on a 10-point scale. We selected four women who were perceived as very beautiful (M = 7.25, SD = 1.27) and highly attractive (M = 7.50, SD = 1.33, $t(22) = 3.76$, $p = .001$), and four women with an average appearance (M = 5.70, SD = 1.38) and little sex appeal (M = 4.33, SD = 1.47, $t(22) = 7.04$, $p < .001$). The level of intelligence that is needed to practice the occupations was pretested as well ($M_{high\ intelligence}$ = 83.62 out of 100, SD = 2.49 vs. $M_{low\ intelligence}$ = 24.78 out of 100, SD = 3.83, $t(14) = 12.86$, $p < .001$). The four occupations that require little intelligence were hairdresser, sales women, call center employee, and beautician. The four intelligent occupations were financial adviser, company lawyer, architect, and business consultant. Thus, half of the attractive and average-looking women seemed to be highly intelligent, whereas the other half practiced a profession that required little intelligence. Participants had to indicate to what degree they would like to have a long-term relationship with each of the eight candidates (0= not at all, 10= absolutely).

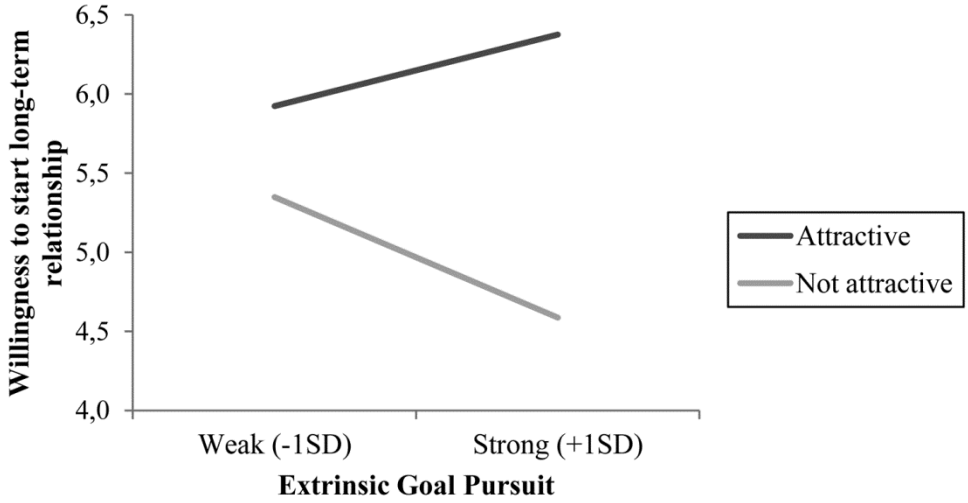
1.3 Results and discussion

To test the impact of goal pursuit and partner characteristics (attractiveness and implied intelligence), we estimated a regression containing scores for intrinsic and extrinsic goal pursuit (both predictors centered), attractiveness, and implied intelligence (both represented by a dummy coded variable), and the interaction of attractiveness and implied intelligence with intrinsic goal pursuit on the one hand, and with extrinsic goal pursuit on the other hand. We used multilevel regression analysis (with maximum likelihood estimation) to take into account the fact that participants provided multiple preferences (for each of the eight profiles). Multilevel regression requires a specification of the appropriate error structure, guided by statistical criteria such as Akaike's information criterion (AIC). In our analyses, the most suitable error covariance structure was unstructured, which supports both different correlations between measurements and differing variances of measurements (Littell, Stroup, & Freund, 2002). The interpretation of multilevel parameter estimates is the same as in an ordinary linear regression, but the standard errors of the parameters are adjusted to acknowledge that participants can provide multiple observations (Snijders & Bosker, 1999).

Overall, attractive women (M = 6.15, SD = 1.71) were preferred over average-looking women (M = 4.97, SD = 2.05, $t(112) = 5.54$, $p < .001$). However, extrinsic goals moderated the effect of appearance ($F(1, 112) = 8.07$, $p = .005$). As Figure 1 shows, the impact of attractiveness on partner preference was much more pronounced for participants high in

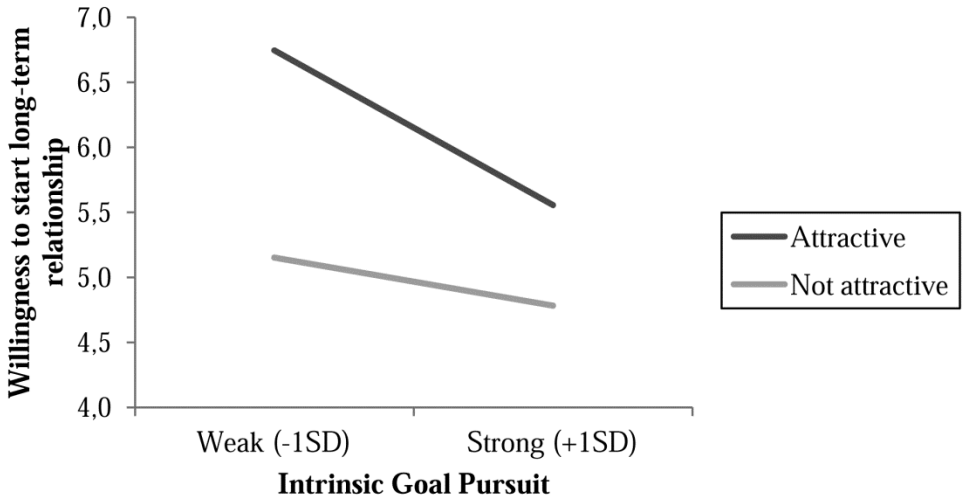
extrinsic goal pursuit, $t(112) = 5.93$, $p < .001$, than for participants low in extrinsic goal pursuit, $t(112) = 1.91$, $p = .059$. The preference for average looking partners is significantly lower for participants high ($M = 4.59$) versus low ($M = 5.35$) in extrinsic goal pursuit, $t(112) = 2.05$, $p = .04$. In contrast, the preference for attractive partners is somewhat higher for participants high ($M = 6.38$) versus low ($M = 5.92$) in extrinsic goal pursuit, although this difference did not reach significance, $t(112) = 1.56$, $p = .12$.

Figure 1. Mate preference as a function of extrinsic goal pursuit and mate attractiveness



The preference for an attractive partner was also marginally significantly moderated by intrinsic goal pursuit ($F(1, 112) = 3.69$, $p = .057$). As Figure 2 shows, the impact of attractiveness on partner preference was more pronounced for participants low in intrinsic goal pursuit, $t(112) = 5.27$, $p < .001$, than for participants high in intrinsic goal pursuit, $t(112) = 2.56$, $p = .012$. The preference for attractive partners is significantly lower for participants high ($M = 5.55$) versus low ($M = 6.75$) in intrinsic goal pursuit, $t(112) = 4.10$, $p < .001$. In contrast, preference for average looking partners did not significantly differ between participants high ($M = 4.78$) versus low ($M = 5.15$) in intrinsic goal pursuit, $t(112) = 1.00$, $p = .32$. Nevertheless, these results do not demonstrate that intrinsically oriented women devalue attractiveness. Their weaker preference for an attractive partner could be instigated by a stronger preference for an intelligent partner as we averaged their preferences for both the intelligent and unintelligent partner. As such, because an attractive partner is always both intelligent and unintelligent, it is unclear which characteristic drives our results.

Figure 2. Mate preference as a function of intrinsic goal pursuit and mate attractiveness

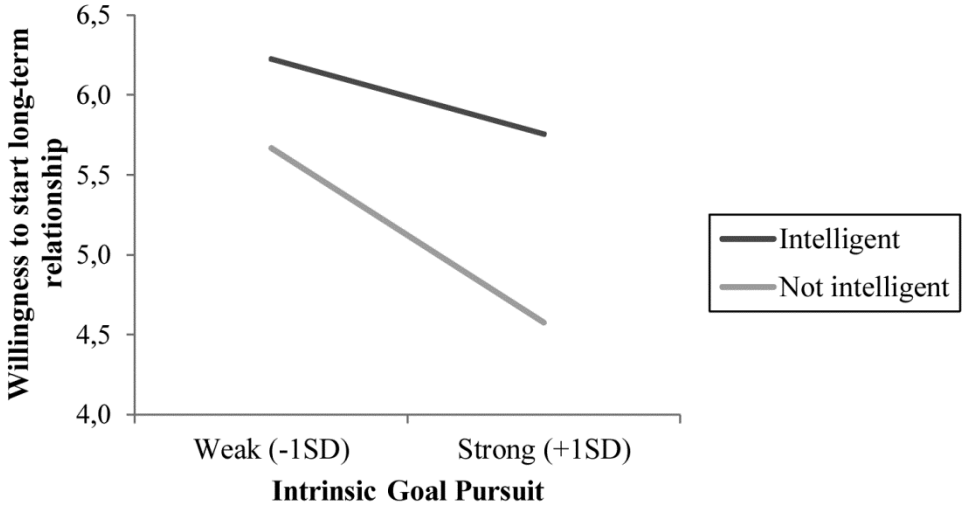


Overall, women with an 'intelligent' profession (M = 5.99, SD = 1.64) were also favored over women with an 'unintelligent' profession (M = 5.12, SD = 1.77, $t(112) = 5.68$, $p < .001$). However, intrinsic goals moderated the effect of occupation ($F(1, 112) = 4.10$, $p = .045$), while extrinsic goals did not ($F(1, 112) = .92$, $p = .34$). As Figure 3 shows, the impact of implied intelligence on partner preference was more pronounced for participants high in intrinsic goal pursuit, $t(112) = 5.45$, $p < .001$, than for participants low in intrinsic goal pursuit, $t(112) = 2.58$, $p = .01$. The preference for presumably less intelligent partners is significantly lower for participants high (M = 4.58) versus low (M = 5.67) in intrinsic goal pursuit, $t(112) = 3.51$, $p < .001$. While the preference for presumably intelligent partners is still somewhat lower for participants high (M = 5.76) versus low (M = 6.23) in intrinsic goal pursuit, this difference did not reach significance, $t(112) = 1.65$, $p = .10$.

Current results show that goal pursuit indeed moderates the importance attached to physical appearance and implied intelligence. First, both extrinsic and intrinsic goals moderated the impact of attractiveness on partner preference. While no significant effect of extrinsic goal pursuit was obtained for highly physically attractive partners, we did find that extrinsically oriented men were less willing to start a long-term relationship with women with average appearances than less extrinsically oriented men. At the same time, an inverse, marginally significant moderation was obtained for intrinsic goal pursuit: while no significant effect of intrinsic goal pursuit was obtained for average looking partners, intrinsically oriented men were less willing to start a long-term relationship with a highly attractive woman than less intrinsically oriented men. Second, the impact of implied intelligence was moderated by

intrinsic goal pursuit only. While both men high and low in intrinsic goal pursuit value a presumably intelligent partner, the former tend to like a woman with presumably lower intelligence less as a long-term partner than the latter.

Figure 3. Mate preference as a function of intrinsic goal pursuit and implied mate intelligence



Although the current results support our theorizing, four limitations threaten the validity of our conclusions. First, while we manipulated partner occupation to signal differences in intelligence, differences in occupation may also signal differences in wealth and status. Second, although physical attractiveness of the female candidates was pretested, some men might have a different idea of an attractive partner. Third, it is unclear which partner characteristic drives our results, as participants did not make a trade-off between attractiveness and intelligence. In other words, an attractive partner could be both intelligent and unintelligent, while an intelligent partner could be both attractive and average-looking. Fourth, we merely investigated the partner preferences of male participants in the current study. To deal with these possible limitations, we ran a second study that examines whether current effect could be replicated when both men and women would make a trade-off between attractiveness and agreeableness based on a verbal description of two potential partners. In addition, Study 2 investigates whether goal pursuit could affect relationship well-being through partner preferences.

2. **STUDY 2**

The first aim of current study is to replicate previous findings for a more general sample containing both men and women. Goal pursuit should not only predict the partner preference of male students, but also influence the type of partner that women prefer, and such findings should also extend beyond a student sample. The second aim of this study is to investigate whether goal pursuit would still predict partner preferences when participants have to make an explicit trade-off between external qualities such as attractiveness and social visibility on the one hand, and internal qualities that make for a long-term relationship on the other hand. The third aim of this study is to investigate how goal pursuit and partner preference affect people's relationship well-being. Previous research on relationship well-being has investigated how both *interpersonal* processes such as couple's problem-solving style (Rusbult, Johnson, & Morrow, 1986), and *intrapersonal* variables such as empathy (Davis & Oathout, 1987) affect the quality of romantic relationships (Blais et al., 1990; Watson, Hubbard, & Wiese, 2000). Another significant line of research has focused on the role of motivations in romantic relationships. In particular, research on self-determination in close relationships has investigated how both the motivation to be in a relationship, as well as the need fulfillment in that relationship, influences people's relationship well-being (La Guardia & Patrick, 2008; Patrick et al., 2007). Nevertheless, researchers have not yet explored the effect of goal pursuit on relationship well-being through partner preferences. In particular, we expect that an emphasis on partner attractiveness may undermine relationship well-being; this would imply that goal pursuit would indirectly affect the latter.

2.1 Participants

We collected 600 responses through the Amazon service Mechanical Turk. Based on two control questions to make sure people actually read the questions, we excluded almost half of the respondents from the analysis (Oppenheimer, Meyvis, & Davidenko, 2009). First, one of the statements of a scale measure was an instruction to select a certain answer. Second, we asked the participants to read a text of 230 words very carefully before they answered to the question. The text was about hobbies and the question below stated "What is your favorite hobby?". However, participants who actually read the text got the instruction to answer "I passed the test" in the text box. Participants who did not follow one of these instructions, were

excluded from the analysis. In line with previous studies, we also excluded gay participants (8 males, 12 females). The final sample consisted of 335 American citizens (111 males; 224 females), of which 270 were currently involved in a relationship. Participants' age varied from 18 to 78 (M = 32.43, SD = 11.58).

2.2 Procedure and design

First, participants answered several questions about their current and previous relationships. We measured the number of their serious relationships, the duration of their longest and/or current relationship, the number of times they had been married and/or divorced, and how many children they have from current and/or past relationships. Second, to assess people's relationship well-being, we asked people who were involved in a relationship (n = 270) to what extent they agreed with seven items (e.g., "How well does your partner meet your needs?") from the relationship assessment scale (Hendrick, 1988; Hendrick, Dicke, & Hendrick, 1998). We used an alternative version of this scale for people who were not involved in a relationship (n = 65). They answered to the same questions (e.g., "How well did your partner meet your needs?") concerning their feelings about their past romantic partners generally. The scale was anchored with "Not at all/Extremely poor" (1) and "A great deal/Extremely good" (5), and had an internal consistency of .90.

Third, participants had to indicate which type of partner they would prefer. In contrast with Study 1, participants did not receive a profile with picture, but merely a short description of two hypothetical romantic partners (Simpson & Gangestad, 1992; see appendix). One partner was described as attractive, sexy and socially visible but not that committed, whereas the other partner was described as a loving and caring partner with an average appearance. As participants can engage in an idiosyncratic understanding of "attractive" and because the personality characteristics conducive to a long-term relationship are not related to wealth and status, current study eliminates the possible limitations of Study 1. We asked participants to indicate the extent to which they would like to have a relationship with one of these partners by moving a slider bar to the left (partner A) or to the right (partner B). The more they moved the slider to the left or the right, the stronger their preference for that type of partner. As such, participants made a trade-off between a romantic partner with an attractive appearance on the one hand, and a partner with a nice personality on the other hand. The descriptions of these two types of partners were counterbalanced.

Afterwards, participants filled out the 30-item Aspiration Index developed by Kasser and Ryan (1996) assessing the importance attached to extrinsic and intrinsic goals. Each subscale was measured with five items. The subscales for financial success, image, and fame measured extrinsic goal pursuit (Cronbach's $\alpha = .90$). The subscales for personal growth, community contribution, and affiliation measured intrinsic goal pursuit (Cronbach's $\alpha = .89$).

2.3 Results and Discussion

First of all, we tested whether extrinsic and intrinsic goal pursuit could affect several indicators of relationship success. We hypothesized that extrinsically oriented people might be less likely to maintain an intimate relationship than intrinsically oriented people as they focus more on a partner's external characteristics that might be less satisfying in the long term. In line with our expectations, we found that extrinsic goal pursuit is negatively related to the duration of respondents' current ($r = -.16$, $p = .003$) and longest relationship ($r = -.15$, $p = .005$). Moreover, we found that extrinsically oriented people are less likely to get married ($r = -.23$, $p < .001$), while intrinsically oriented people tend to divorce less often ($r = -.12$, $p = .02$). Intrinsic goal pursuit was also negatively related to the number of serious relationships ($r = -.10$, $p = .07$), and positively related to the number of children they have with their current partner ($r = .14$, $p = .07$), but with marginal significance. All in all, these results indicate that goal pursuit does influence people's romantic life.

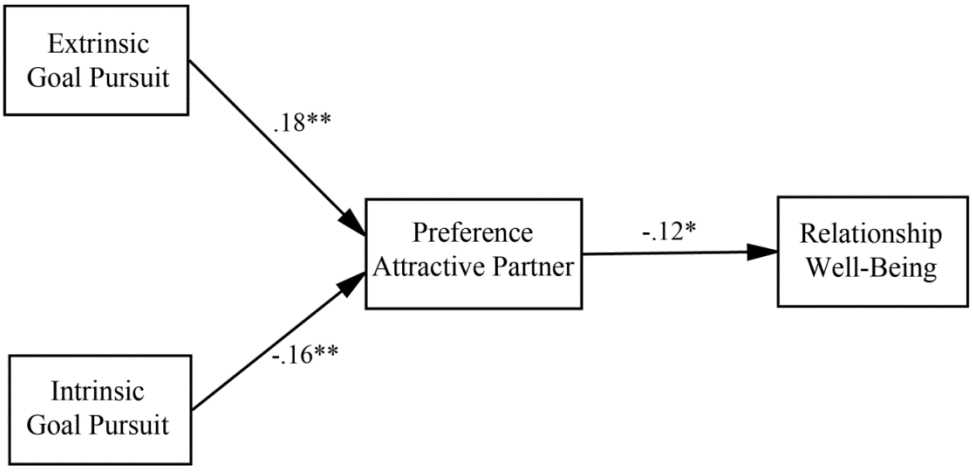
To test whether goal pursuit determines which type of partner people prefer, we ran a regression model with extrinsic and intrinsic goal pursuit as predictors of partner preference. Consistent with previous findings, the results showed that the more people pursue extrinsic goals, the more they are likely to choose an attractive and socially visible partner ($F(1, 335) = 13.17$, $p < .001$). In contrast, the more people want to attain intrinsic goals, the more they prefer a committed partner with a caring personality ($F(1, 335) = 7.99$, $p = .005$). These results replicate the previous findings in a more heterogeneous sample of both men and women.

However, to test whether gender had an influence on partner preferences, we included gender as a covariate in our regression model. The results showed that overall men ($M = 25.54$) had a stronger preference than women ($M = 14.52$) for the attractive partner ($F(1, 335) = 19.07$, $p < .001$). To test whether gender moderates the effect of goal pursuit on partner preferences, we ran another regression model with extrinsic and intrinsic goal pursuit, gender,

and their interactions as predictors of partner preference. The results showed that participants' gender had no influence on their partner preference ($F(1, 335) = .38$, $p = .54$). While both extrinsic ($F(1, 335) = 13.93$, $p < .001$) and intrinsic ($F(1, 335) = 6.57$, $p = .01$) goal pursuit significantly predict partner preference, neither main effect was moderated by gender ($F(1, 335) = 2.08$, $p = .15$; $F(1, 335) = .55$, $p = .46$). So, there is no evidence that goal pursuit affects partner preferences differently for men and women. Similarly, including relationship status (i.e. being involved in a relationship or not) as a covariate in the regression model with extrinsic and intrinsic goal pursuit, revealed that people who were not in relationship ($M = 27.69$) had a stronger preference for the attractive partner than people who were currently involved in a relationship ($M = 15.88$; $F(1, 335) = 15.24$, $p < .001$). However, in the regression model with extrinsic and intrinsic goal pursuit, relationship status, and their interactions as predictors of partner preference, we did not found evidence that relationship status moderates the effects of either extrinsic ($F(1, 335) = 1.23$, $p = .27$) or intrinsic ($F(1, 335) = .57$, $p = .45$) goal pursuit on partner preferences. We note that age had no influence on partner preferences ($F(1, 335) = 2.52$, $p = .11$).

Finally, we also tested the relation between partner preference and relationship well-being; we restricted this analysis to participants who were currently romantically involved. We found that people's preference for a certain type of partner predicts how they feel about their current relationship: The stronger people's preference for a sexy partner, the less happy they are with their current relationship ($F(1, 270) = 4.16$, $p = .042$). To test whether the effect of goal pursuit on current relationship well-being is mediated by partner preferences, we estimated a path model (see Figure 4).

Figure 4. Mediation of the effect of goal pursuit on relationship well-being through partner preference



First, the results confirmed that the model fits the data well: $\chi^2/df = 1.83$, $p = .16$; RMSEA = .055; CFI = .91. Moreover, we found that partner preference mediates the effect of both extrinsic and intrinsic goal pursuit on relationship well-being. A bias-corrected bootstrap 95% Confidence Interval [-.069, -.002] indicated that extrinsic goal pursuit has a significant negative indirect effect on relationship well-being through partner preferences ($B = -.017$, $p = .03$). Thus, the more people pursue extrinsic goals, the less happy they are with their current relationship because they are more likely to prefer a partner for his or her looks. In contrast, we found a significant positive indirect effect of intrinsic goal pursuit on relationship well-being ($B = .026$, 95% CI = [0.001, .062], $p = .03$). People who are intrinsically oriented are happier with their current relationship as they emphasize more a partner's psychological fitness for a long-term relationship.

Nevertheless, while we suggest that a preference for an attractive partner may result in less relationship well-being, it may as well be the other way around. That is, people who are dissatisfied with their relationship might be one the lookout for a more attractive partner. However, as this alternative model has a worse model fit ($\chi^2/df = 2.53$, $p = .08$; RMSEA = .075; CFI = .83) compared to the original model, it is thus less likely that extrinsically oriented people have a stronger preference for an attractive partner because they are less happy in their current relationship.

3. GENERAL DISCUSSION

Two studies show that goal pursuit determines the type of partner people prefer. Extrinsically oriented people are more likely to prefer a partner with an appealing appearance, while intrinsically oriented people emphasize a nice personality more, and even tend to de-emphasize attractiveness. While having a good-looking, but uncommitted partner might be appealing in the short-term, such preferences may make people less satisfied with their relationship in the long term. Accordingly, Study 2 demonstrated that the goals people pursue in their lives indirectly affect people's relationship well-being through their partner preference. As such, it seems that extrinsically oriented people are less happy with their relationship because they focus too much on external characteristics.

The question remains why extrinsically oriented people have a stronger preference for an attractive partner than intrinsically oriented people. It might be that extrinsically oriented

people attach such a great importance to beauty that they downgrade the negative qualities of a partner or underestimate their impact on relationship quality. However, it might as well be that the focus of extrinsically oriented people on the appearance of a partner is part of their mating strategy. It could be that they consciously select good-looking people because they associate attractiveness with several other positive qualities. While intrinsically oriented people might refrain from inferring too much information from someone's appearance, extrinsically oriented people might not.

Another explanation is that extrinsically oriented people do not prefer an appealing partner because they think such a partner would have several positive qualities, but they merely do so to feel better about themselves. Previous research has shown that the people one is surrounded with can boost one's self-concept (Ahuvia, 2005). For instance, researchers have shown that people like to publicly associate themselves with successful others, a tendency known as "basking in reflected glory" (Cialdini et al., 1976). Similarly, extrinsically oriented people may like to show off with the looks of their partner in order to gain more social status. Moreover, extrinsically oriented people may think that others evaluate them using the yardsticks they themselves find important, like fame, popularity, and appearance. Hence, it could be more important for extrinsically oriented people to be seen with an attractive partner. In any event, whether or not extrinsically oriented people overrate beauty, associate beauty with other qualities, try to gain status, or to feel better about themselves, their preference for an attractive partner might result in decreased levels of relationship well-being.

Follow-up research may investigate why this preference for an attractive partner might eventually result in a less satisfying relationship. It could be that extrinsically oriented people are less happy with their relationship because their partner is just not attractive enough. They might have settled for a partner that did not meet their high standards of physical attractiveness. Or, their partner could have met their expectation regarding physical appearance at first, but has lost some of his/her physical appeal over time. Fading attractiveness could then result in decreasing relationship happiness. Alternatively, it might be that their partner *is* very attractive, but turns out to have other characteristics that they do not like. Research has shown that people who are more physically symmetrical – which is positively related to attractiveness (Grammer & Thornhill, 1994) – have more socially aversive personality traits such as aggression and neuroticism, and less pro-social traits such as empathy and agreeableness (Holtzman, Augustine, & Senne, 2011). As such, extrinsically oriented people might be less satisfied with their partner because negative personality traits start to overshadow their partner's physical appeal.

Finally, another explanation might be that extrinsically oriented people notice alternative partners more easily as they have an eye for attractiveness. Research has shown that high attentiveness to alternative partners is negatively related to commitment and relationship satisfaction (Miller, 1997). Moreover, inattentiveness to alternative partners serves as a mechanism to protect desirable relationships (Maner, Gailliot, & Miller, 2009; Miller, 1997). Thus, intrinsically oriented people may be more likely than extrinsically oriented people to use this relationship maintenance mechanism, and, consequently, end up being happier in their relationship.

The contribution of current paper is threefold. First of all, these results contribute to research on self-determination. Previous research (e.g., Kasser & Ryan, 1993, 1996) has demonstrated that people are less happy when they focus more on the attainment of extrinsic goals than on the fulfillment of intrinsic goals. According to self-determination theory, extrinsic goal pursuit is negatively related to well-being because it thwarts people's attainment of their innate psychological needs (e.g., Deci & Ryan, 2000). Nevertheless, to our knowledge, it has never been shown before that goal pursuit affects relationship well-being through romantic partner preferences. Current research suggests that the negative relation between extrinsic goal pursuit and well-being might be partially due to a heightened preference for an attractive partner. We also found evidence for the positive effect of intrinsic goal pursuit on well-being as intrinsically oriented people select a committed and caring partner which results in higher relationship well-being.

Current paper also contributes to the literature on subjective happiness. An extensive body of research supports the idea that romantic relationships play a crucial role in people's subjective well-being (e.g., Demir, 2007; Dush & Amato, 2005; Reis, Collins, & Berscheid, 2000). For instance, research has shown that married people and cohabitants are happier than uncommitted people (e.g., Diener, Suh, Lucas, & Smith, 1999; Myers, 2000). Selecting the right partner is therefore of great importance to both relationship and personal well-being. Current paper reveals how goal pursuit and related mate preferences can influence how happy people are.

Finally, current results add to our knowledge about mate selection mechanisms. A vast body of research in the domain of evolutionary psychology has shown that people may value different characteristics in prospective partners. For instance, people may value more externally visible characteristics, such as physical appearance and attractiveness or conspicuous signals of wealth, especially when seeking out a partner for a short-term relationship (Anderson et al., 2010; Kenrick, Sadalla, Groth, & Trost, 1990; Janssens et. al.,

2011; Sundie et al., 2011), while more internal qualities, such as kindness, intelligence, loyalty, and humor may be particularly valued in long-term partners (Buss & Barnes, 1986; Furnham, 2009; Regan, Levin, Sprecher, Christopher, & Gate, 2000). Our research complements this research by showing that the importance attached to more external partner characteristics in *long-term* partners is moderated by goal pursuit. In particular, extrinsically oriented men and women have a stronger preference for an attractive and socially visible partner, while intrinsically oriented men and women prefer a loving and caring partner. Nevertheless, a *long-term* relationship could be perceived differently by extrinsically and intrinsically oriented people. Possibly, extrinsically oriented people might use a shorter time frame when they think of a long-term relationship. A different notion of a "long-term" partner might explain why extrinsically oriented people attach greater importance to partner characteristics such as attractiveness that are particularly interesting for short-term relationships.

Future research should examine what really motivates extrinsically oriented people to focus more on an appealing look, and less on a desirable personality when they choose a possible partner. Moreover, future research should investigate why the preference of extrinsically oriented people for an attractive partner eventually results in diminished levels of relationship well-being. For now, we can conclude that pursuing intrinsic goals and looking beyond the looks of a partner may increase people's chance to marry and live happily ever after.

4. **APPENDIX**

Description of the attractive partner

Person A is considered physically attractive and "sexy". He/she has a sort of charisma that attracts the attention of those around him/her. Although some might consider him/her [somewhat]* arrogant, A possesses a kind of self-confidence that others admire. A is not known, however, for living a responsible life-style. In the past, he/she has had a series of relatively short-term relationships. Some have ended because of questionable faithfulness on the part of A.

Description of the devoted partner

Person B is an average-looking person, someone most people wouldn't consider "sexy". He/she is sufficiently socially skilled but does not possess the kind of magnetic personality that draws the attention of others. Rather, B has a stable and responsible personality. In a relationship, B is caring, dependable, and faithful. He/she would like very much to have a family, likes children, and would probably be good with them.

*Added to the original scenario of Simpson and Gangestad (1992)

CHAPTER

6

CONCLUSIONS, CONTRIBUTIONS, AND FUTURE RESEARCH

CHAPTER VI: CONCLUSIONS, CONTRIBUTIONS, AND FUTURE RESEARCH

The aim of the current dissertation is to gain more insights in the role of personality in making suboptimal decisions. Previous research has mainly focused on the processes leading to suboptimal choices, and investigated under which circumstances these suboptimal choices occur. Due to people's bounded rationality, it is quite a challenge to make perfectly rational decisions. We argue in the current dissertation that some people are more likely than others to overcome these challenges. In the four essays of this dissertation, we demonstrated how several personality measures affect to what extent people make suboptimal choices in various domains ranging from consumer products to romantic partners. First, we will summarize the findings of each essay. Next, we will focus on both theoretical and practical implications of the current findings. Finally, we will pay attention to the limitations of current research and give some directions for future research.

1. RECAPITULATION OF THE FINDINGS

Four essays have demonstrated that individual differences can clarify why people make suboptimal choices. In chapter II "Less is More: Why some domains are more positional than others", we investigated why people choose less over more in some domains. Previous research has demonstrated that for some domains people prefer to be better off in a relative sense rather than in an absolute sense (Alpizar, Carlsson, & Johansson-Stenman, 2005; Carlsson, Johansson-Stenman, & Martinsson, 2007; Frank, 2007; Hillesheim & Mechtel, 2013; Solnick & Hemenway, 1998, 2005). Domains such as income and personal attractiveness are traditionally viewed as positional domains, as people tend to care more about their relative position in these domains. Moreover, researchers have demonstrated that some people generally care more about their relative position than others (Solnick & Hemenway, 1998, 2005). Thus far, it remained unclear why people make such an irrational choice to have more than others rather than having more overall. In this essay, we argue that both domain and dispositional differences reflect social comparison effects. In particular, we found that in domains in which people have to search for social information to evaluate their

outcomes, they have a stronger preference to be better off than others in society. Moreover, people who habitually engage in social comparison are also more likely to choose an outcome in which they are better off in relative terms, yet worse off in absolute terms. Making social comparisons triggers a competitive mindset making people want to outperform others. In sum, we found that if people routinely compare their outcomes with those of others or when they are forced to do so because the outcomes in a given domain are difficult to evaluate, the competitive choice is to be better off in a relative sense. In some domains and for some people, less really can mean more, leading people to make suboptimal choices.

Chapter III "To like or not to like? Individual differences in evaluation difficulty" focused on the very beginning of the decision-making process, namely having a clear preference. When people do not to know what they want, they are prone to make suboptimal choices or no choices at all. In the current essay, we introduced a new individual difference variable that assesses to what extent people find it hard to know how much they like something. We have constructed a valid, reliable six-item scale that is able to predict various consumer behaviors. Study 1 showed that individual differences in evaluation difficulty moderated the too-much-choice effect. People who have a hard time evaluating are less satisfied with their product choices when the number of product alternatives from which they have to choose becomes moderately high. Study 2 demonstrated that people who lack confidence in their evaluation skills were more likely to count on other product attributes to evaluate what they taste. In particular, individual differences in evaluation difficulty predicted the use of a price-quality heuristic. The more people experienced difficulties with evaluations, the more quality they assigned to the highest-priced chips. Moreover, these people were less likely to make accurate evaluations. People who struggle with evaluation difficulty cannot distinguish types of chips in a blind taste test, even though the quality of the chips differed. Taken together, we found that people who lack confidence in their own evaluation skills are more likely to experience negative effects of too much choice, draw more on external information to evaluate the quality of products they taste, and are less likely to make accurate evaluations. People who have difficulties making evaluations are thus prone to make suboptimal choices as making evaluations are a fundamental step in the decision-making process.

In chapter IV "Judging by appearances: the effect of consumers' physical appearance aspirations on product preferences", we demonstrated that the extent to which people want to have an appealing appearance affects their reactions to simple, low-involvement products. We show that people who attach greater importance to their physical appeal have a stronger preference for products with an appealing package design. Their preference for appealing

products would make sense if these products could enhance their own attractiveness. However, as these FMCG's have no bearing at all on their physical appeal, their preference for products with an appealing design is not a rational choice. In Study 1, we showed that people's physical appearance aspirations can even affect their taste evaluations. People who want to have an appealing appearance like chocolates better when they are presented in a beautiful box compared to an ugly box. Study 2 demonstrated that people who want to look good have a higher inclination to buy a nice-looking product because they both assign more quality to beautiful products, and highly appreciate appealing package designs in general. Study 3 reveals that consumers who aspire to physical attractiveness think that being beautiful is associated with several positive outcomes, and, consequently, overgeneralize the inference rule that beauty-is-good to evaluate basic consumer products. Finally, Study 4 showed that the effect of physical appearance aspirations on the preference for nice-looking products disappears when objective quality information is salient, as they no longer need to derive quality information from the package design. However, because product quality is mostly unobservable prior to consumption, and people often lack the time, motivation, or cognitive capacity to evaluate products thoroughly, they may still make quality inferences based on package design. As people with strong appearance aspirations tend to judge a book by its cover, they are more likely to make suboptimal choices.

In chapter V "More than meets the eye: The relation between extrinsic versus intrinsic goal pursuit, mate preferences and romantic relationship well-being", we moved our attention from consumer decisions to the selection of a life partner. We demonstrated that individual differences in goal pursuit also affect the type of partner people choose, and consequently determines how happy people are in their relationship. Study 1 showed that men who pursue extrinsic goals, such as wealth, fame, and appearance, attach more importance to a partner's physical appearance, while men who want to attain intrinsic goals, such as personal development, community involvement, and close relationship fostering, attach more importance to a partner's intelligence. Thus, extrinsically oriented men are more interested in an attractive, but not necessarily intelligent woman, while intrinsically oriented men are more likely to select an intelligent, but possibly plain-looking partner. Study 2 replicated this for a more general sample of men and women, and demonstrated that mate preferences mediate the effect of goal pursuit on relationship well-being. As such, people who pursue extrinsic goals in their lives are less satisfied with their relationship because they highly value partner attractiveness. In contrast, intrinsically oriented people are more likely to be happy in their relationship because they value partner characteristics conducive to a long-term relationship.

In summary, this essay demonstrated that the more people pursue extrinsic goals in their lives, the more importance they attach to the physical appeal of a romantic partner, even at the expense of that partner's inner beauty. As a result, extrinsically oriented people report lower relationship well-being than intrinsically oriented people. This essay demonstrates the importance of making good decisions, as even people's relationship well-being, and thus also their overall happiness, can depend on it.

2. THEORETICAL IMPLICATIONS

An extensive body of research has demonstrated that people face many challenges when making decisions. According to rational choice theorists (e.g., von Neumann & Morgenstern, 1944) people should simply count on all the relevant information, and follow the rules of logic to make rational decisions; in reality, people make decisions that often deviate from rationality. Simon (1955) argued that people's rationality is bounded by both the limitations of human processing and the complexity of the human environment. Many researchers in the domain of judgment and decision making have shown that people indeed violate the rules of rational choice extensively. Kahneman and colleagues (e.g., Kahneman et al., 1993; Kahneman & Tversky, 1984; Tversky & Kahneman, 1974, 1981, 1986) have conducted numerous experiments to demonstrate that people routinely abandon the laws of logic due to the limited capacities of the human mind to process information. Moreover, Schwarz (Schwarz & Clore, 1996; Schwarz, 2000, 2004) has demonstrated extensively that people also make decisions based on affect, either felt at the moment of evaluation or due to the ease of processing information. Finally, several researchers have shown that people can only process a limited amount of information (Eppler & Mengis, 2004; Malhotra, 1982, 1984). Nevertheless, consumers have to choose from an inexhaustible array of product alternatives, resulting in a decreased motivation to choose, or even no choice at all (Botti & Hsee, 2010; Botti & Iyengar, 2004; Dhar, 1997; Iyengar & Lepper, 2000). While a large body of research has demonstrated that people make suboptimal decisions due to emotions, limited cognition, and a complex environment, little research has paid attention to how people differ in the extent to which they are prone to make suboptimal decisions. The current dissertation aims to contribute to this line of research by demonstrating that some people are indeed more likely than others to make decisions that deviate from rationality.

Previous research has introduced several variables that are directly related to the decision-making process. These variables assess to what extent people count on emotion versus cognition when making decisions (Cacioppo & Petty, 1982; Epstein, Pacini, Denes-Raj, & Heier, 1996; Nygren & White, 2002), how people handle decisions both before and after the decisions are made (Brinker & Dozois, 2009; Schwartz et al., 2002), and how competent people are in making decisions (Bruine de Bruin, Parker, & Fischhoff, 2007; Turner, Rim, Betz, & Nygren, 2012). The current dissertation introduced a new individual difference variable that addresses the first step in the decision-making process, namely knowing what one wants. We demonstrated that people differ in the extent to which they find it hard to know how much they like something. As making evaluative judgments is a fundamental step in the decision-making process, it is important to understand to what extent people struggle to make evaluations. Indeed, we have demonstrated that these individual differences in evaluation difficulty can result in suboptimal choices as people with high evaluation difficulty draw more on irrelevant attributes than on their own evaluative assessments to evaluate the quality of products. Our results suggest that people who suffer from evaluation difficulty are less likely to make accurate evaluations, and thus prone to make more suboptimal decisions. In short, being able to make good decisions is a personality skill, and being able to make good evaluations is definitely a part of it.

Moreover, we demonstrated that making good decisions does not only depend on personality measures that directly relate to the decision-making process, but also on other personality variables such as individual differences in social comparison and goal pursuit. Several lines of research have demonstrated that social comparison can affect the choices people make. For instance, researchers have demonstrated that people's preferences can even reverse based on whether they can make direct comparisons or have to evaluate in an isolated modus (Hsee, Loewenstein, Saly, & Bazerman, 1999; Hsee & Zhang, 2010; Hsee, 1996). However, we demonstrated that individual differences in social comparison (Gibbons & Buunk, 1999) also affect to what extent people make suboptimal choices. A priori, it is hard to predict whether habitual comparisons are more or less likely to make suboptimal choices. On the one hand, people who compare a lot might be more knowledgeable about reference values, and thus more capable of making good decisions. On the other hand, people who are likely to engage in social comparisons may be influenced by this social information more than it should, leading to more suboptimal decisions. We found evidence for the second line of reasoning by demonstrating that the more people make social comparisons, due to their personality or the situation at hand, the more they prefer to be better off from a relative point

of view, even though it would be far more rational to choose an outcome in which they are better off in absolute terms. In addition to these individual differences in social comparison, we focused on another individual difference variable that is not directly related to decision making, namely goal pursuit. We found that the goals people pursue in their lives could also lead people to make suboptimal decisions. First, we demonstrated that people who pursue an attractive appearance are more likely to buy products with appealing packages, even though they have no bearing at all on their own attractiveness. Second, we demonstrated that goal pursuit can even affect which type of partner characteristics people value the most: inner versus outer beauty. Extrinsically oriented people are less satisfied with their relationship because they highly value physical partner attractiveness. These results suggest that people with strong extrinsic aspirations, and appearance aspirations in particular, are more likely to make suboptimal choices as they are blinded by the looks of both consumer products and romantic partners. In sum, we found that personality measures that are not directly related to the decision-making process, also determine the extent to which people make suboptimal decisions. In doing so, we also contributed to the extent literature on social comparison theory (e.g., Buunk & Gibbons, 2007; Festinger, 1954; Wood, 1989) and self-determination theory (e.g., Deci & Ryan, 1985, 2000; Kasser & Ryan, 1993, 1996).

However, these personality measures do not lead directly to suboptimal choices, but rather do so indirectly by instigating more proximal triggers of suboptimal choices such as people's concern about their position in a reference group or their use of simple decision strategies. Previous research has demonstrated that positional concerns are stronger for some domains and for some people (Alpizar et al., 2005; Carlsson et al., 2007; Frank, 2007; Hillesheim & Mechtel, 2013; Solnick & Hemenway, 1998, 2005). We demonstrated that the extent to which people make social comparisons, due to their personality or the domain at hand, explains why they make positional, yet irrational choices. In addition, previous research has demonstrated that people use heuristics or rules of thumb when making decisions (Gigerenzer & Brighton, 2009; Gigerenzer & Gaissmaier, 2011; Marewski, Gaissmaier, & Gigerenzer, 2010; Todd & Gigerenzer, 2003). In the context of consumer decisions, heuristics are particularly useful to make inferences about the quality of products. The price-quality heuristic is probably the most obvious simple decision strategy. Nevertheless, researchers have demonstrated that the relationship between price and quality is rather weak for many products (e.g., Gerstner, 1985). The use of a beauty-is-good heuristic is not straightforward either. While some people may positively associate package design and quality, other people may think that increasing investments in package design come at the expense of product quality. We demonstrated that

some people are more likely to assign higher quality to products with an appealing package design. In particular, we showed that people with strong appearance aspirations are more likely to follow a beauty-is-good heuristic. Moreover, we suggest that people who lack confidence in their own evaluations may as well be more likely to draw on beautiful package designs as they are also more likely to count on price as a quality signal.

Taken together, several personality measures may indirectly lead to suboptimal decisions. Nevertheless, making suboptimal choices may threaten people's subjective well-being. Even for simple consumer products, people can experience feelings of stress from having too many choice options (Botti & Hsee, 2010; Botti & Iyengar, 2004; Dhar, 1997; Iyengar & Lepper, 2000; Schwartz, 2004), especially people who tend to search for the best available option (Schwartz et al., 2002). We contributed to this line of research by demonstrating that individual differences in evaluation difficulty moderate this too-much-effect. Moreover, when people make important decisions, such as the selection of a romantic life partner, the consequences for their subjective well-being may increase. We demonstrated that extrinsically oriented people are less happy with their relationships as they focus more on a partner's outer beauty than on his/her inner beauty. As people's subjective well-being depends on their relationship well-being, these results may contribute to a better understanding of why a strong attachment to extrinsic relative to intrinsic goals is associated with diminished well-being (Deci & Ryan, 2000; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993, 1996; Sheldon & Kasser, 2008; Williams, Cox, Hedberg, & Deci, 2000). In sum, it is highly relevant to understand why people make suboptimal decisions as their subjective well-being may depend on it. Therefore, we aimed to arrive at a better understanding of the role of personality in making suboptimal decisions. The current dissertation demonstrated that some people are indeed more likely to make decisions that pass rationality over.

As these individual difference variables may all result to some extent in suboptimal choices, the combination of those personality measures may even increase the chance of suboptimal choices. Therefore, these personality measures should at least be positively related to each other. Indeed, we found that a social comparison orientation is positively correlated with individual differences in evaluation difficulty. People who have a hard time to know what they like might thus be more likely to search for social information to guide their decisions. However, it might as well be that people experience difficulties to evaluate *because* they have too much social information on which they can count. While we do not have evidence for the direction of this relationship, we do suggest that individual differences in evaluation difficulty could trigger the search for social information. Accordingly, we found

that people have a stronger preference to be better off than others in domains for which the values are difficult to evaluate, and thus, for which people need to engage in social comparison. It would thus be possible that individual differences in evaluation difficulty also trigger the search for social information, which in turn activates a competitive drive, and eventually result in a higher inclination to choose an outcome in which they are better off from a relative view. Moreover, we found – in unreported studies – that a social comparison orientation is also positively related to extrinsic, but not to intrinsic goal pursuit. As extrinsic goal pursuit could be instigated by the desire to obtain rewards or praise from other people (Sheldon et al., 2004), one would expect that these extrinsically oriented people are indeed more likely to engage in social comparisons. As such, it is possible that extrinsically oriented people have a stronger preference for an attractive partner partly because they are more likely to compare their partner to that of others. While individual differences in social comparison are both related to evaluation difficulty and extrinsic goal pursuit, we do not expect those personality measures to be positively related to each other. We did suggest that both individual differences in evaluation difficulty and the pursuit of an appealing appearance may result in the use of a beauty-is-good heuristic. Nevertheless, the motivations to do so seem not at all related. People who have strong appearance aspirations actually believe that beautiful products are generally better products. As such, their evaluations become *easier* as they can count on a strong conviction that beautiful products are better products overall. In contrast, people who have difficulties to evaluate lack confidence in their judgments. If they would be more likely to follow a beauty-is-good heuristic, they would simply do so because they do not trust on their own evaluation skills, and thus count on package design as a signal of quality. While both people with evaluation difficulty and appearance aspirations may follow the same decision strategy, they do so for different reasons. How the reported individual difference variables work together to trigger suboptimal choices, remains a topic for future research. Before we give several other suggestions for future research, we give some practical implications of the current findings.

3. **PRACTICAL IMPLICATIONS**

In addition to these theoretical contributions, the findings of the current dissertation also offer valuable contributions for practitioners. We found that some people are more likely than others to buy products based on their package design. Even for basic, low-involvement

products, package design matters. In particular, we found that people who want to have an appealing appearance assign more quality to products that simply look good. Bearing in mind that most people lack time and motivation to make well-considered purchase decisions in an ever-growing market, many people may select products based on their package design. Thus, marketers should pay attention to package design, especially when they want to position their products as high quality products. While we demonstrated the importance of package design for low-involvement products, the impact of package design may be stronger for high-involvement products. Moreover, marketers should definitely invest in the design of products that are identity relevant or have bearing on consumers' attractiveness such as make-up and cosmetics, as people who care about their own appearance might also care more about the design of these types of products. In addition, the design of products is particularly important for new products. Not only to grasp the attention of consumers, but also to convince them to buy these products. As the introduction of new products elicits new evaluations, consumers with evaluation difficulty might be more likely to follow a beauty-is-good heuristic.

Indeed, new products require special attention from practitioners. First, consumers are often loyal and restrict their purchases to the products they usually buy. Second, some people may ignore new products to avoid making new evaluations. Indeed, we found that people who experience difficulties to evaluate are mostly loyal consumers who are unlikely to seek variety. As people have in general little time and low motivation to make product choices, these findings could apply to a more general public. As such, it is important to guide consumers in their purchase decisions so that they do not refrain from buying new products due to the difficulties they encounter when evaluating. In addition to a beautiful package design, marketers can use price promotions to convince consumers to buy their products for the first time. However, it is important to clarify that these promotions are merely temporal, as consumers with evaluation difficulty use price information to evaluate the product itself. For example, when a product is very cheap, they may assume that the quality of that product is poor as well. In addition, retailers can persuade consumers who experience evaluation difficulty by putting new products in a prominent place in their stores.

Finally, we demonstrated that people with evaluation difficulty are more likely to experience negative effects of too many choice options. As such, retailers that offer a small assortment may become increasingly important to mitigate these choice overload effects. Moreover, online retailers could also help consumers to tackle their difficulties with large assortments. While these online shops carry a huge assortment, they mostly offer the possibility to filter the amount of product alternatives based on several criteria. Moreover,

online retailers can provide consumers with product labels such as “good value for money” to help consumers to make their decisions. Such labels could be particularly interesting for specific product categories such as electronic devices. As consumers are increasingly buying their products online, they may experience less negative effects of too many choice options. Taken together, it is highly relevant for both marketers and retailers to understand the difficulties people face when making evaluations in order to guide their purchase decisions.

4. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The current dissertation demonstrated how several personality measures may result in a stronger inclination to make suboptimal choices. For instance, we found that social comparisons trigger a competitive mindset making people prefer a positional outcome over an outcome that is superior from an absolute point of view. While we did offer a valid explanation, we do not want to state that social comparisons fully explain why people choose positional. We merely offered one possible determinant of positional choices. Other factors could thus further explain why some people want to be better off from a relative point of view. For example, the preference to be better off than others may also be the consequence of status concerns, a competitive mindset, the visibility of the domains of comparison, or different points of reference. Similarly, several other reasons may explain why extrinsically oriented people have a stronger preference for an attractive partner. Extrinsically oriented people might value partner attractiveness more because these people are more attractive themselves, overrate beauty, associate beauty with other qualities, try to gain status, or to feel better about themselves. While we limited our attention to the influence of a few personality measures on the inclination to make certain choices, we do not want to claim that these explanations are the only valid ones. Future research could be conducted to investigate the viability of several other explanations for people’s inclination to make suboptimal choices.

The current dissertation mostly focused on the influence of individual differences to explain why people make suboptimal choices. Nevertheless, we do not want to underestimate the importance of situational differences. Previous research has already demonstrated that situational differences have a very strong influence on people’s judgments and decisions (e.g., Burson et al., 2009; Hsee et al., 1999). In line with an interactionist point of view (e.g., Ekehammar, 1974; Fleeson, 2004), we believe that these situational differences may further explain under which circumstances the demonstrated effects occur. In the current dissertation,

we have already shown that the effect of individual differences in appearance aspirations on the preference for beautiful products disappears when quality information is salient. Future research could investigate the influence of other potential moderators of the demonstrated effects. For instance, we expect that individual differences in evaluation difficulty are only at play for evaluations that are moderately difficult. When an evaluation is very difficult, everyone may experience evaluation difficulty. In contrast, when an evaluation is extremely easy, no one may have difficulties to evaluate, even people who generally lack confidence in their own judgments. When an evaluation is moderately difficult, however, people may find it hard to make this evaluation, especially those who generally experience difficulties to evaluate. Future research could thus investigate how these individual differences interact with situational differences to further explain why some people are more likely to make suboptimal choices.

In addition to possible moderators, future research could investigate possible mediators of the demonstrated effects. As these personality measures do not lead directly to suboptimal choices, but rather do so indirectly by instigating other triggers of suboptimal choices, it is highly interesting to understand these processes. In the current dissertation, we demonstrated that people with strong appearance aspirations are more likely to buy products with an appealing design. We found that two separate processes instigate their inclination to buy beautiful products: a strong belief that beautiful products are generally better products on the one hand, and a strong appreciation for the visual aesthetics of products (CVPA; Bloch, Brunel, & Arnold, 2003) on the other hand. Moreover, we demonstrated that people with strong appearance aspirations prefer products with attractive packages because they overgeneralized the idea that beauty-is-good for people to evaluate basic consumer products. In addition, we demonstrated that the effect of individual differences in social comparison on positional choices disappeared when we controlled for competitive drive. These results indicate that competitive drive mediates the effect of individual differences in social comparison on the inclination to be better off in relative terms. In general, future research could be conducted to further uncover the processes behind people's inclination to make suboptimal choices.

Another limitation of the current dissertation is that we merely measured our personality variables; Not only in our survey studies, but also in our experimental studies. Indeed, we measured the extent to which people pursue extrinsic or intrinsic goals in their lives to predict both product and partner choices. Unfortunately, every attempt to manipulate participants' goal pursuit – in unreported studies – failed. Manipulations such as a modified scrambled

sentence task (Srull & Wyer, 1979), word puzzles or pictures with extrinsic versus intrinsic values, did not have any effect on participants' goal pursuit. Overall, researchers have not yet found a valid way to temporarily affect the goals people value the most. However, future research could investigate how the importance people attach to *both* extrinsic and intrinsic goals could be increased by using, for example, a mortality salience manipulation. Previous research has demonstrated that making people aware of the inevitability of death increases the amounts of purchasing and consumption (Mandel & Smeesters, 2008). Similarly, people may assign more value to the attainment of both extrinsic and intrinsic life goals when death becomes salient. For now, we could only measure the extent to which people attach importance to the attainment of extrinsic versus intrinsic goals in their lives. In addition, we merely measured the extent to which people find it hard to make evaluative judgments. Future research will definitely be conducted to manipulate participants' evaluation difficulty. For example, we could give half of the participants easy-to-evaluate statements (e.g., "I like to eat apples) and the other half of the participants difficult-to-evaluate statements such as the economic system justification scale (e.g., "There is no point in trying to make incomes more equal"; Jost & Thompson, 2000) to temporarily manipulate their confidence in their evaluation skills. Other studies have already demonstrated that individual difference variables can somewhat vary as a function of the situation. For example, the need for closure can be manipulated through varying time pressure (Heaton & Kruglanski, 1991), or the perceived attractiveness of an attitude-attribution task (Webster, 1993). Individual differences in regulatory focus can be induced by providing positive or negative feedback (Roney, Higgins & Shah, 1995), or by using a contingency framing manipulation that creates contingencies between performance on the target tasks and assignment of a final task (Crowe & Higgins, 1997). Similarly, our suggested manipulation should thus by able to temporarily affect their level of evaluation difficulty, albeit rather moderately.

Moreover, we did not provide direct evidence for the relationship between the personality measures and the ensuing decisions people make. We did found that some people are more likely to care more about their relative position in society, to have a stronger preference for products with appealing packages, to place more value on partner attractiveness than on partner characteristics conducive to a long-term relationship, and to draw more on irrelevant product attributes to evaluate what they taste. However, they did not make actual suboptimal choices. First of all, they mostly reported their preference, so they were merely more likely than people without these personality traits to make a suboptimal choice. Second of all, they expressed their preference for one of two ends of a spectrum, which may not have been

realistic. In particular, we asked them to make a trade-off between having more from a relative versus absolute point of view, product design versus product quality, and partners' outer versus inner beauty. In reality though, people are not confronted with these kind of trade-offs. Finally, their preferences may not result in a suboptimal choice at all. For instance, we demonstrated that some people are more likely to follow simple decision strategies. However, previous research has demonstrated that the use of heuristics is not per definition bad, and can even outperform more complex decision strategies (Gigerenzer & Gaissmaier, 2011; Marewski et al., 2010). Nevertheless, our findings do suggest that some people are more likely than others to make certain choices, have certain preferences, and make certain evaluations that deviate – at least to some extent – from rationality.

Finally, the question remains whether these choices are really suboptimal in the way that they can affect people's subjective well-being. In the current dissertation, we demonstrated that people who have difficulties to evaluate are less happy with their product choices when they choose from a relatively large assortment. We have also provided some evidence for the relationship between partner preferences and relationship well-being. However, based on our survey and experimental data we cannot conclude that the reported relationship well-being is indeed caused by a stronger focus on partner attractiveness. Whether the preference of extrinsically oriented people for an attractive partner eventually results in diminished levels of relationship well-being thus remains a topic for further investigation. For now, we can conclude that some people are indeed more likely than others to make choices beyond rationality.

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